OR 698,701

[redacted]

DRAFTSMAN,

No. 698,701. Patented Apr. 29, 1902.

H. L. GUENTHER.

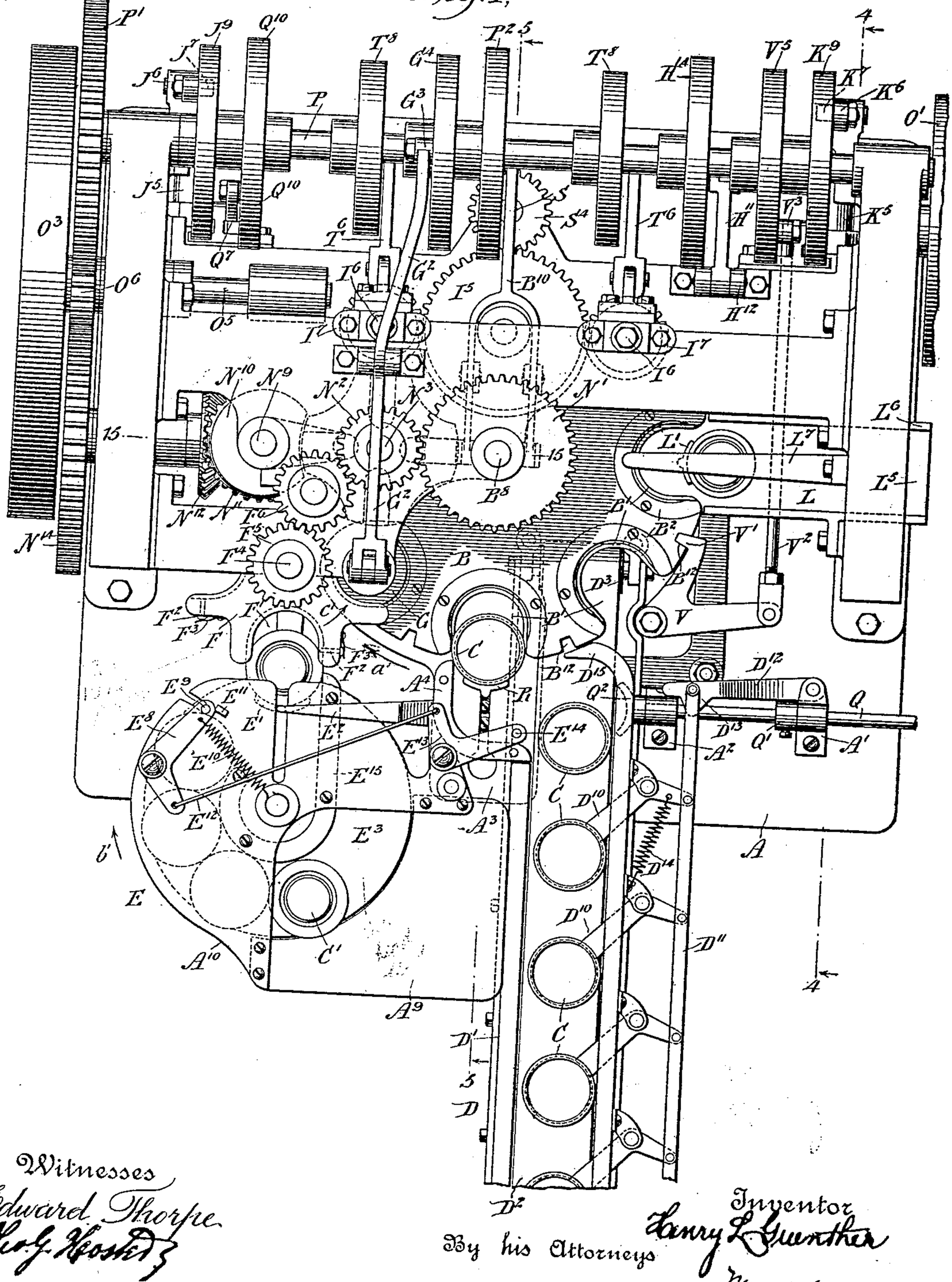
MACHINE FOR CAPPING AND COMPRESSING CANS.

(Application filed Jan. 20, 1900.)

(No Model.)

16 Sheets—Sheet 1.

Fig. 1.



Witnesses
Edward Thorpe
Henry Hoster

By his Attorneys

Inventor
Harry L. Guenther

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

Can making machines,

Head seaming,

Feeding and applying.

14

Patented Apr. 29, 1902.

H. L. GUENTHER.

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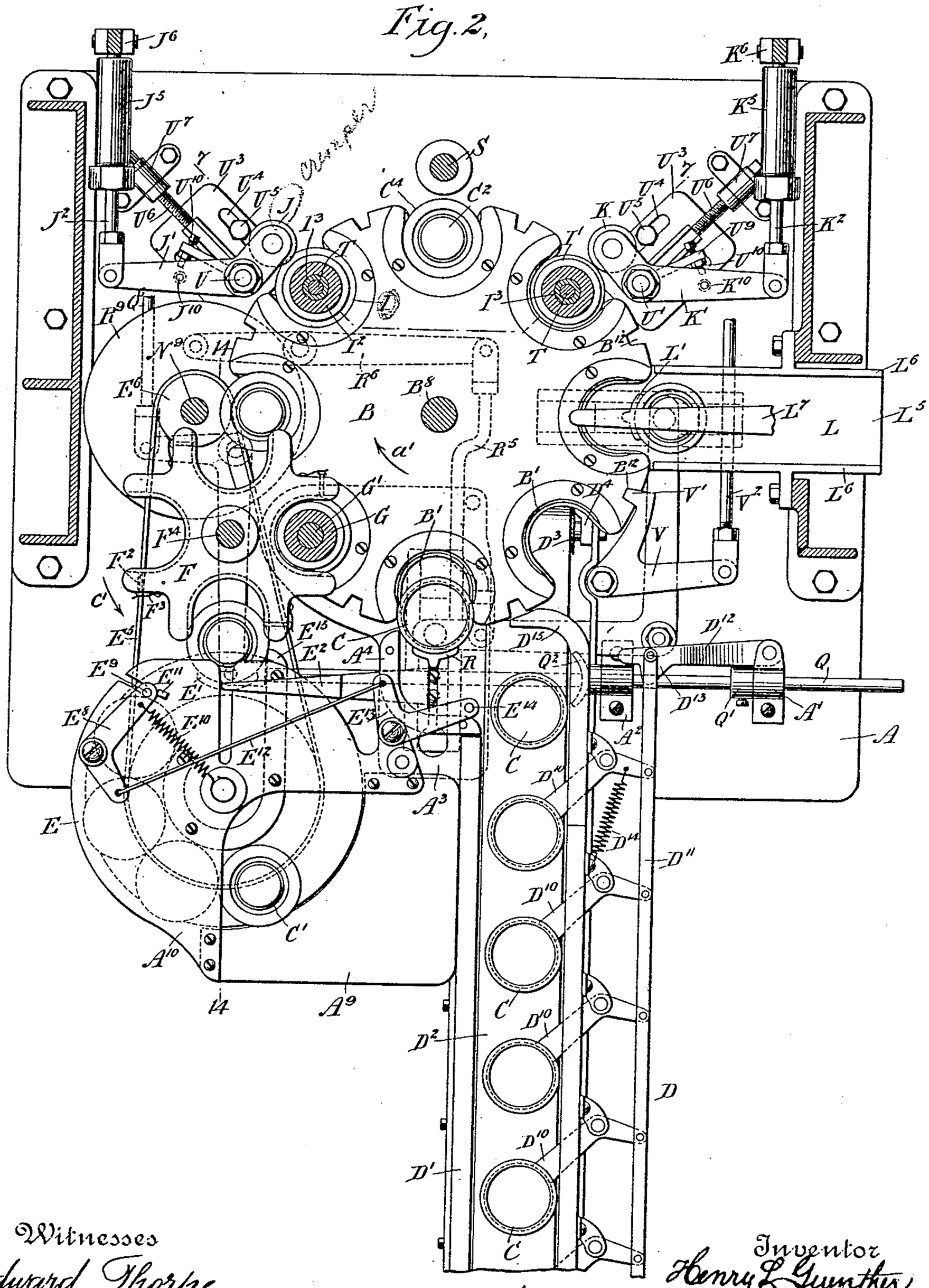
(No Model.)

16 Sheets—Sheet 2.

Fig. 2.



Witnesses

Edward Thorpe

Geo. G. Hoskins

Inventor

Henry L. Guenther

By his Attorneys

Munn & Co.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

113. SHEET METAL WARE, MAKING;

Can making machines,

Head seaming,

Feeding and applying.

14.

No. 698,701. Patented Apr. 29, 1902.

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MACHINE FOR CAPPING AND COMPRESSING CANS.

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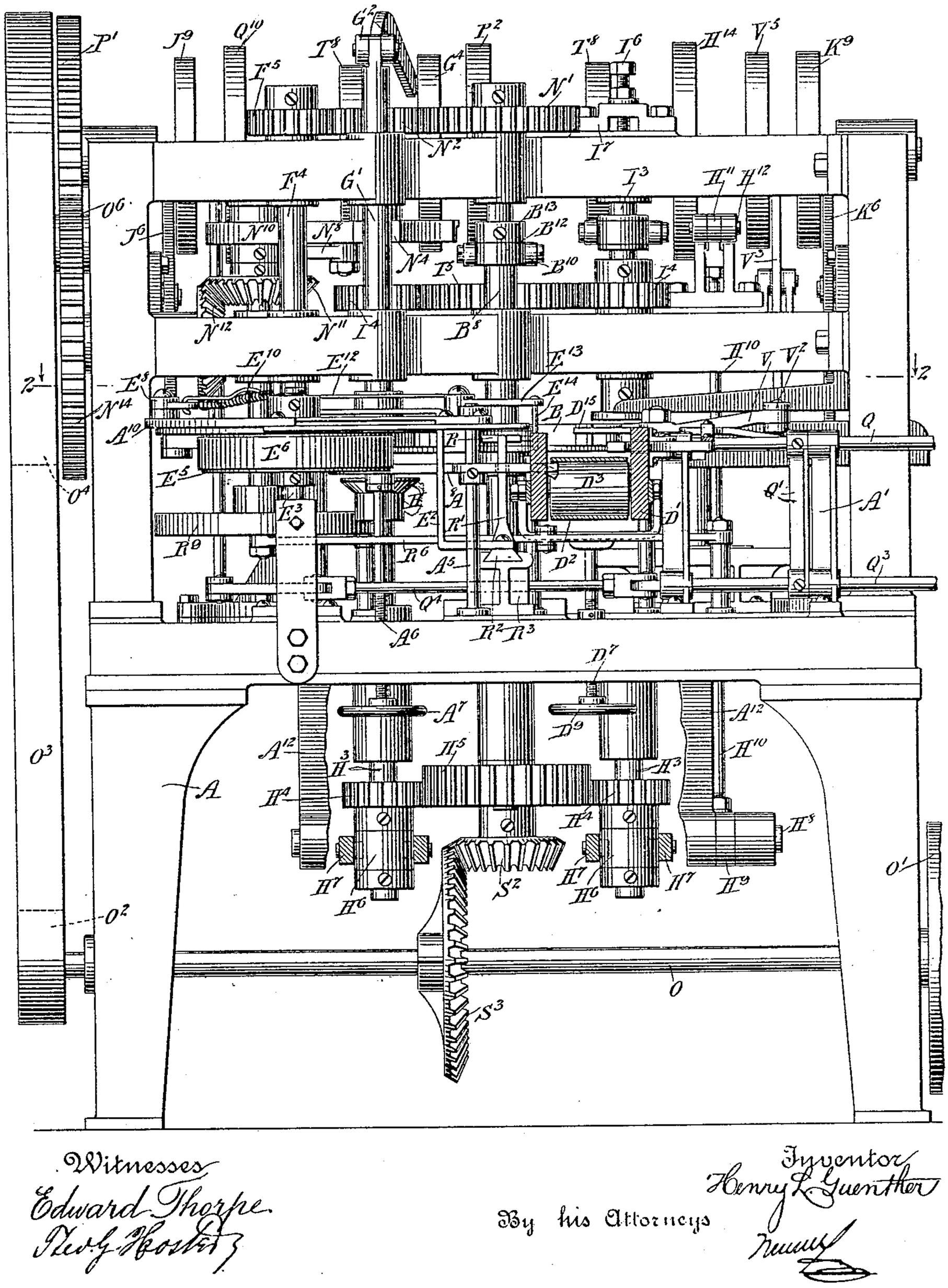
(No Model.) 16 Sheets—Sheet 3.

Fig. 3.



Witnesses
Edward Thorpe.
Percy Hoster

By his Attorneys

Inventor
Henry L. Guenther

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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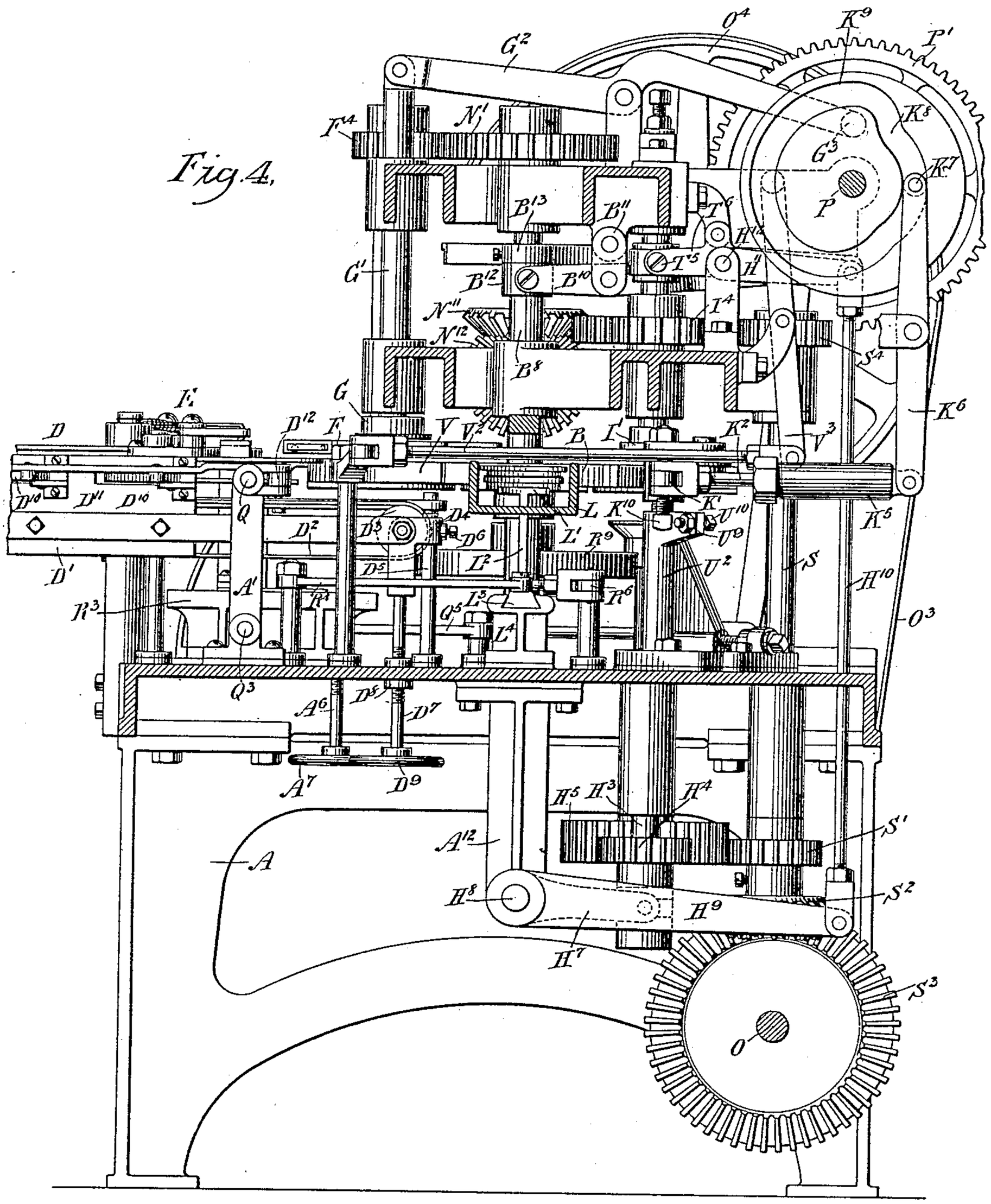
(No Model.) 16 Sheets—Sheet 4.

Fig. 4.



Witnesses

Edward Thorpe

Henry Hoskins

Inventor

Henry L. Guenther

By his Attorneys

Munn & Co.

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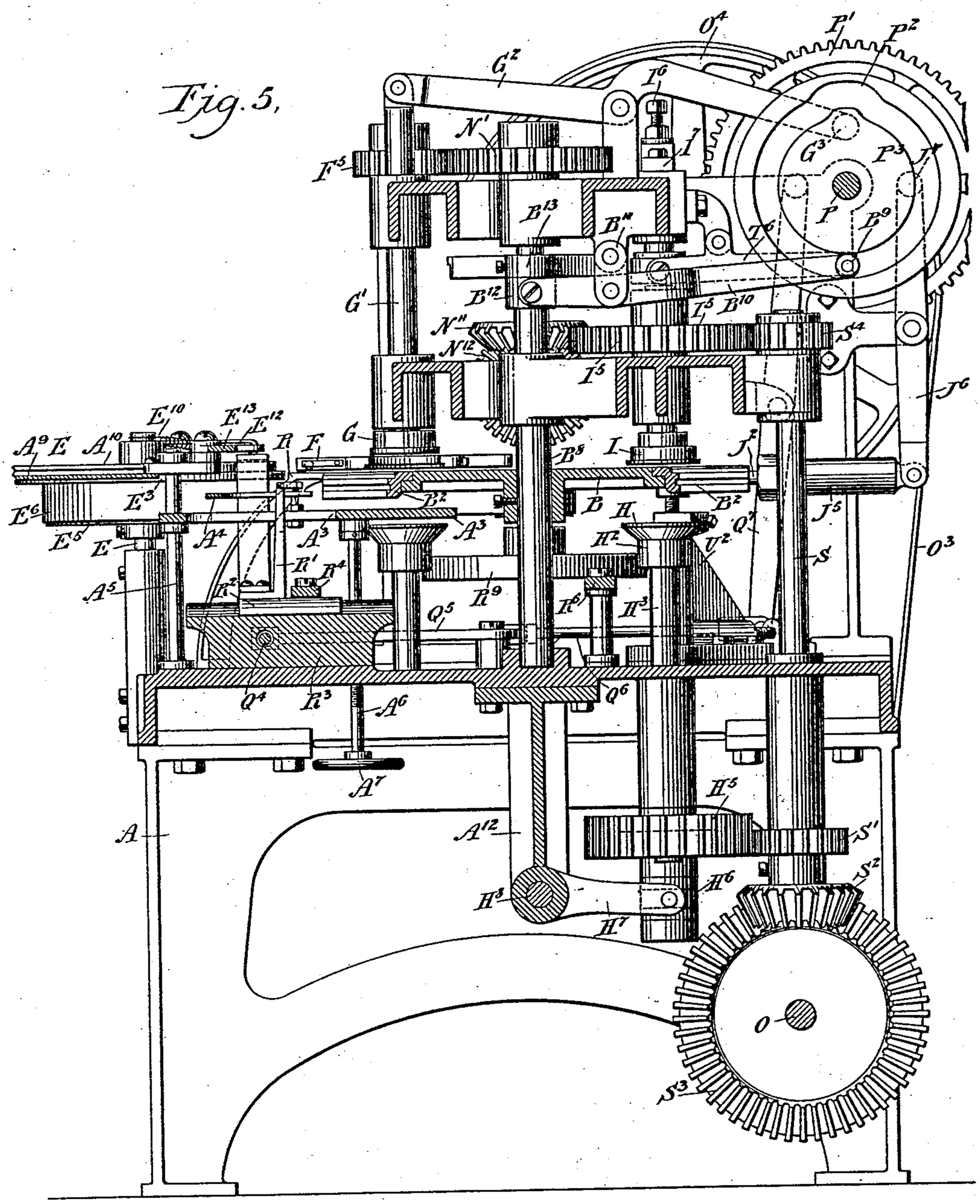
(No Model.)

16 Sheets—Sheet 5.

Fig. 5.



Witnesses
Edward Thorpe
Rud. J. Hoffert

Inventor
Henry L. Guenther
By his Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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(No Model.) 16 Sheets—Sheet 6.

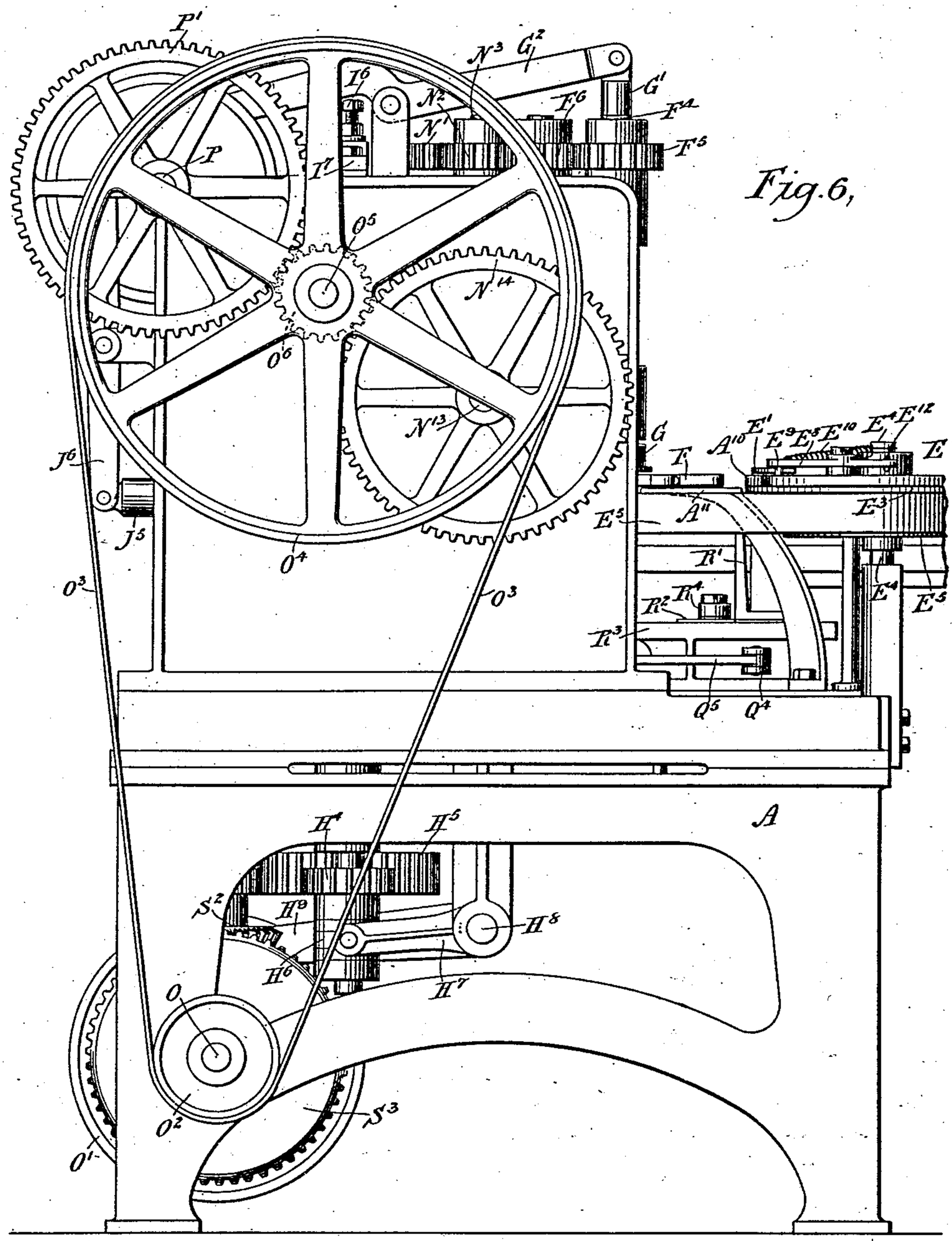

Fig. 6.

Witnesses
Edward Thorpe
Rev. J. Hoster

Inventor
Henry L. Guenther
By his Attorneys
Howson & Howson

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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(No Model.) 16 Sheets—Sheet 7.

Fig. 7.

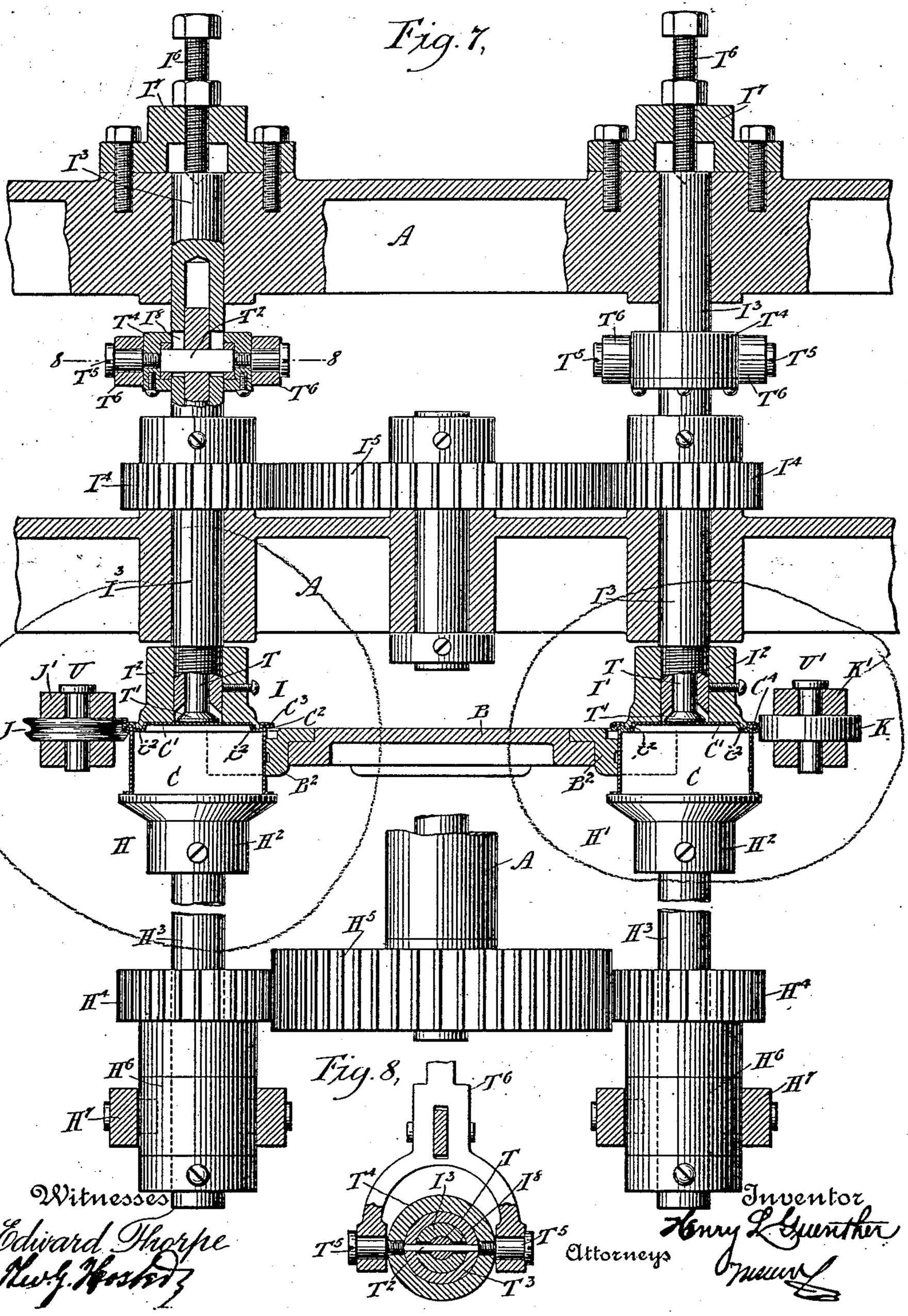

Fig. 8.

Witnesses
Edward Thorpe
Rud. J. Hoster

Inventor
Henry L. Guenther

Attorneys

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Can making machines,
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DRAFTSMAN,

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No. 698,701. Patented Apr. 29, 1902.

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MACHINE FOR CAPPING AND COMPRESSING CANS.

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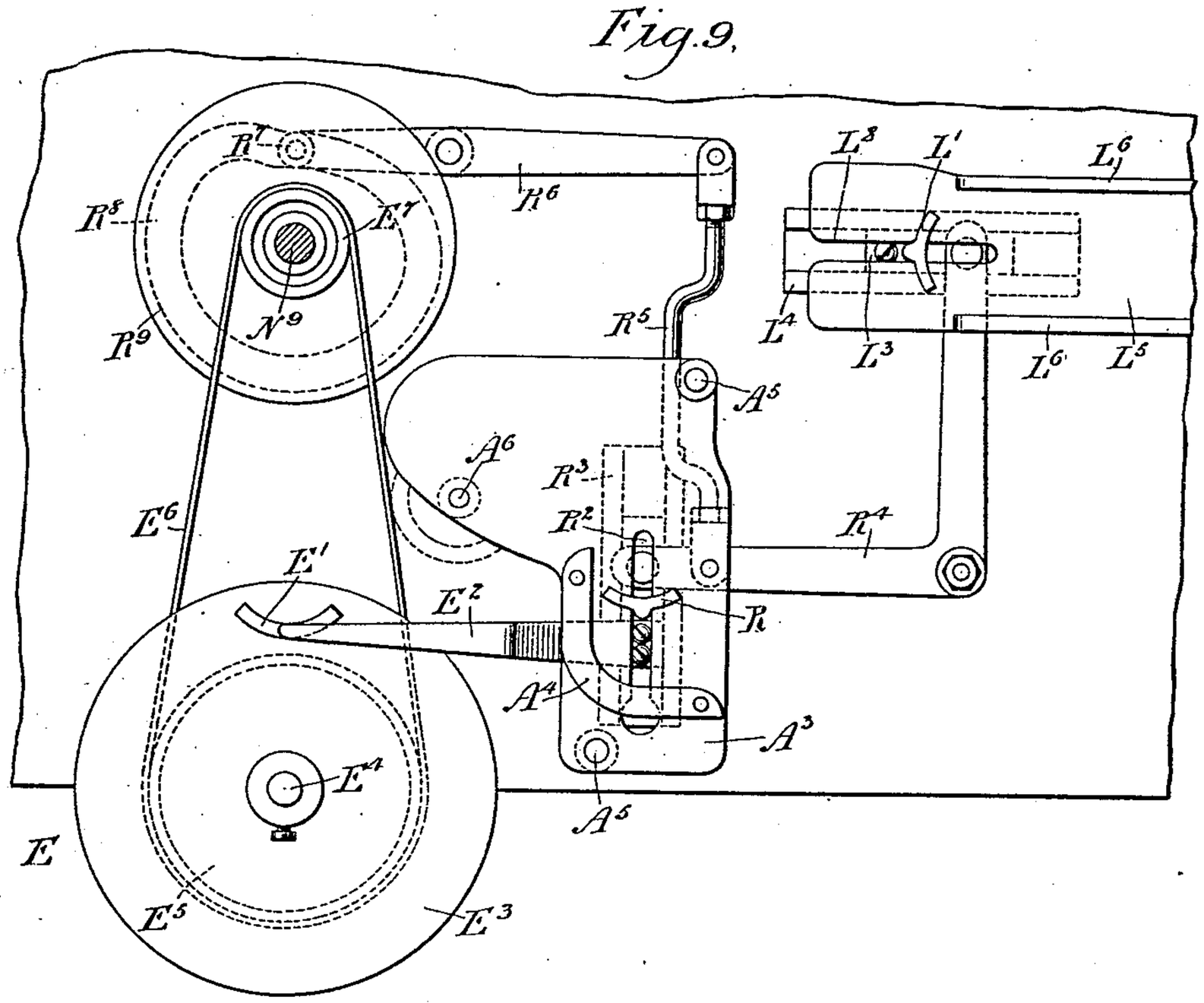
(No Model.) 16 Sheets—Sheet 8.

Fig. 9.



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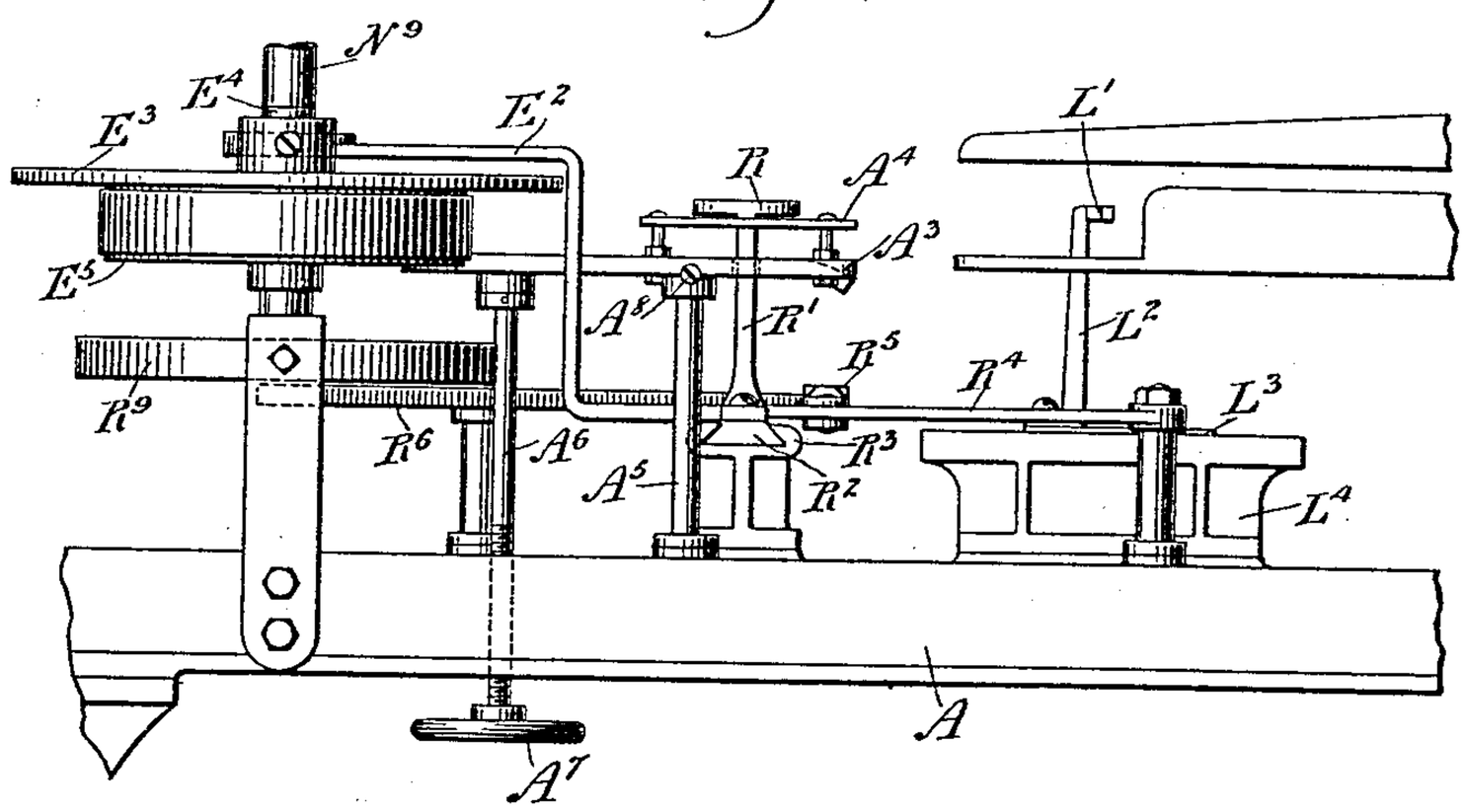

Witnesses
Edward Thorpe
Rec'd. Hoskins

Inventor
Henry L. Guenther
By his Attorneys
Munn & Co

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

Can making machines,
Head seaming,
Feeding and applying.

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No. 698,701. Patented Apr. 29, 1902.

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(Application filed Jan. 20, 1900.)

(No Model.)

16 Sheets—Sheet 9.

Fig. 11,

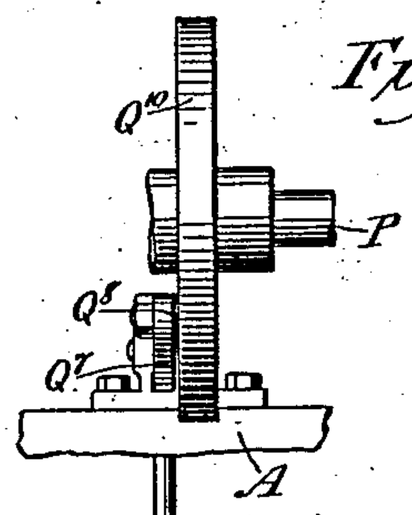


Fig. 12,

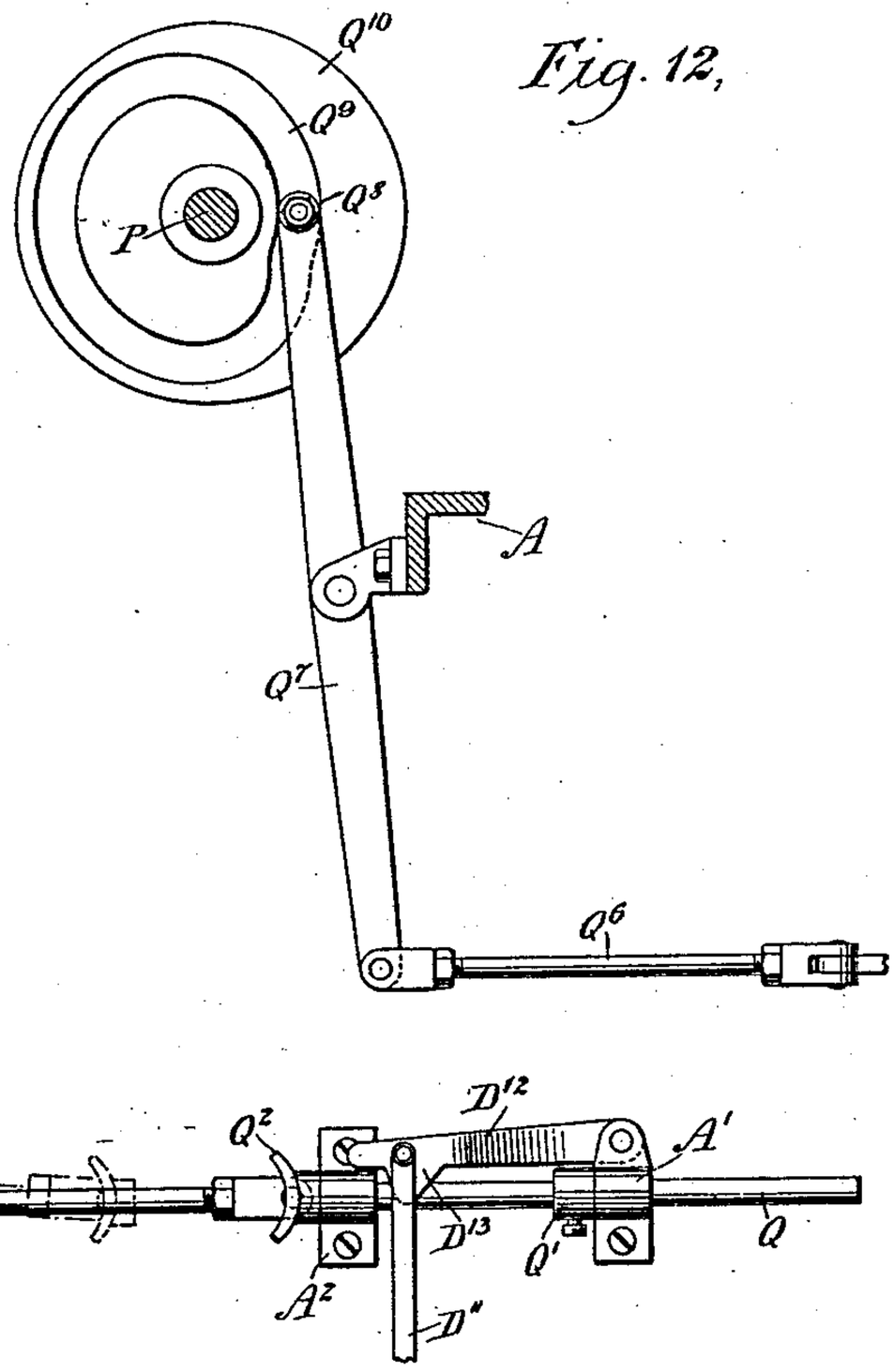
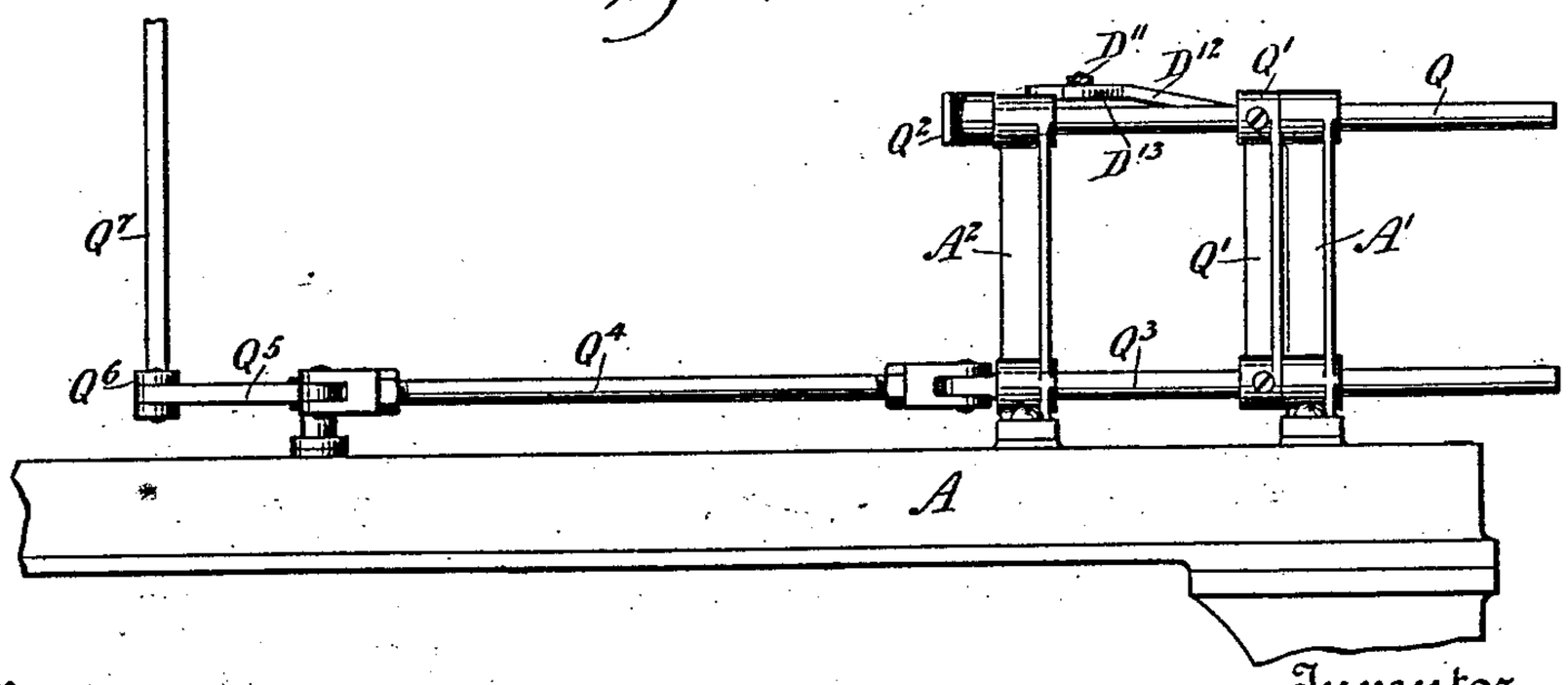


Fig. 13.



Witnesses
Edward Thorpe
Herbert G. Hoskins

Inventor
Henry L. Guenther

By his Attorneys
Munn & Co

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

45. SHEET METAL WORK.

Can making machines,

Head seaming,

Feeding and applying.

DRAFTSMAN.

No. 698,701. Patented Apr. 29, 1902.

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MACHINE FOR CAPPING AND COMPRESSING CANS.

(Application filed Jan. 20, 1900.)

(No Model.) 16 Sheets—Sheet 10.

Fig. 14.

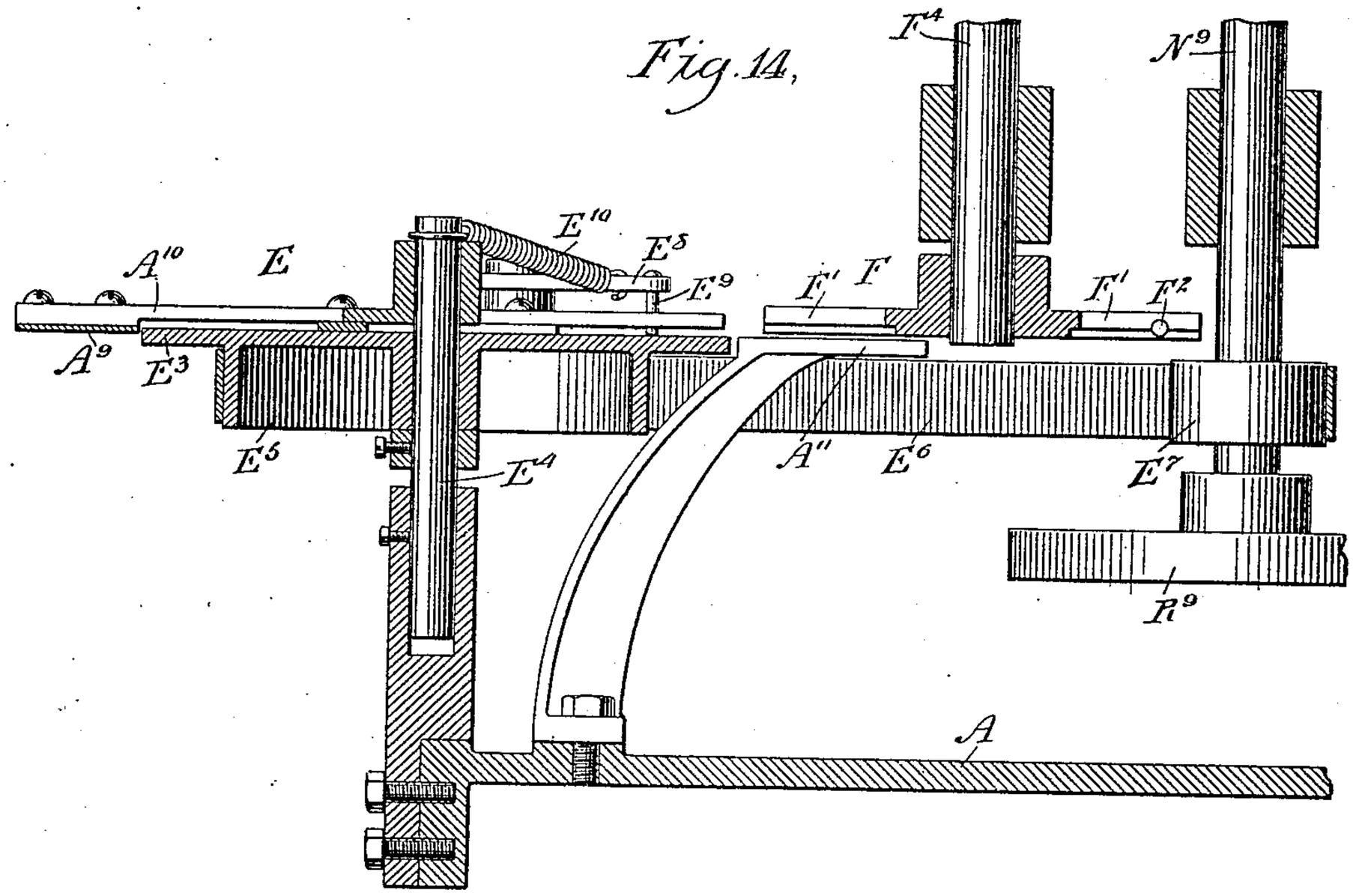
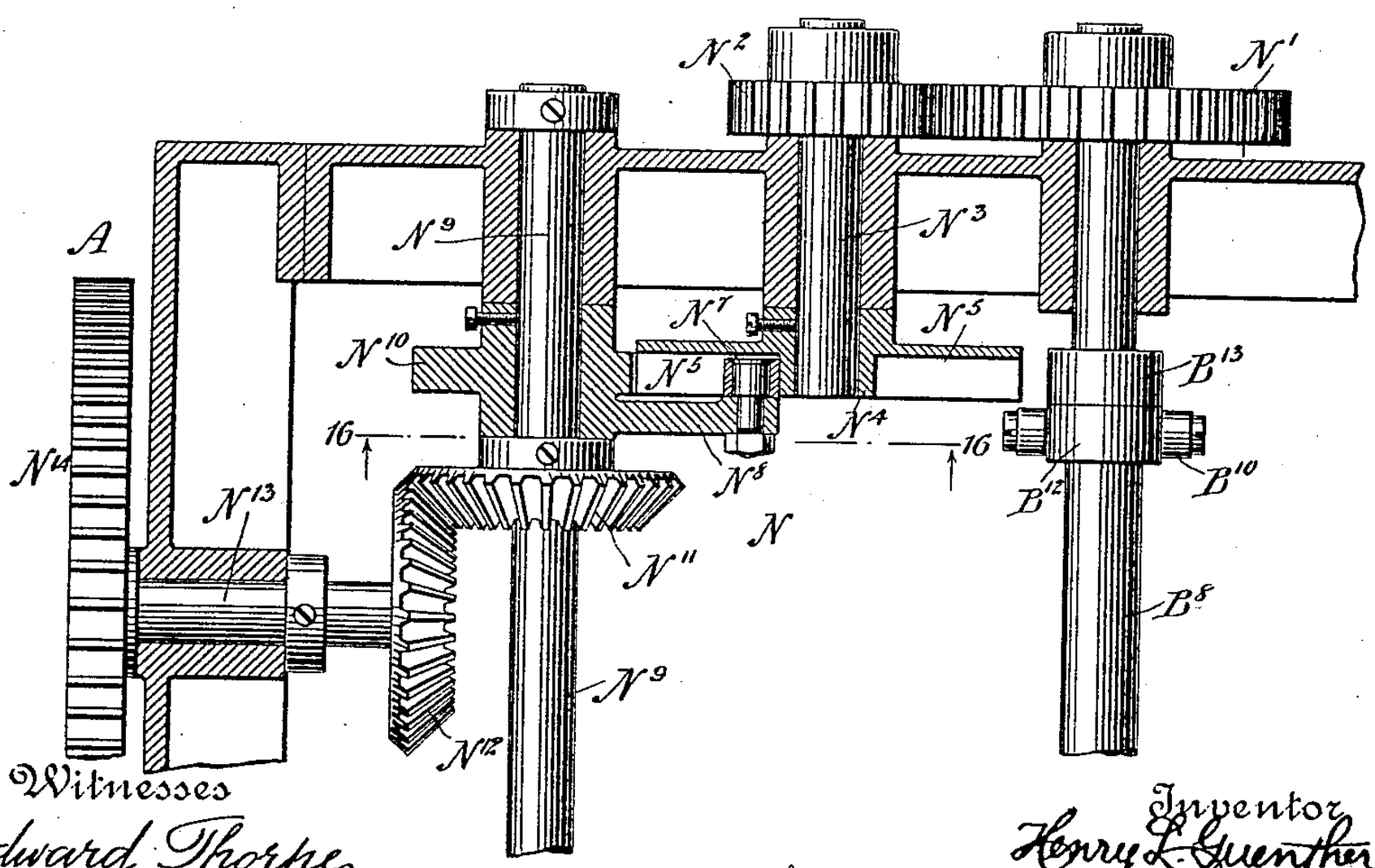


Fig. 15.



Witnesses

Edward Thorpe

Geo. G. Hosken

Inventor

Henry L. Guenther

By his Attorneys

Munn & Co

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DRAFTSMAN

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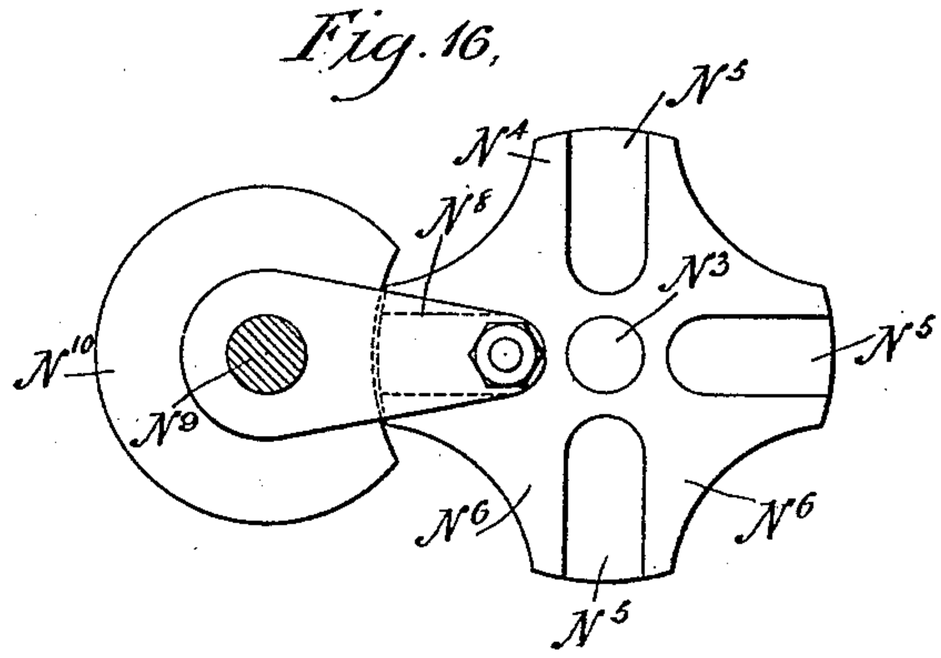
MACHINE FOR CAPPING AND COMPRESSING CANS.

(Application filed Jan. 20, 1900.)

(No Model.) 16 Sheets—Sheet 11.

Fig. 16.



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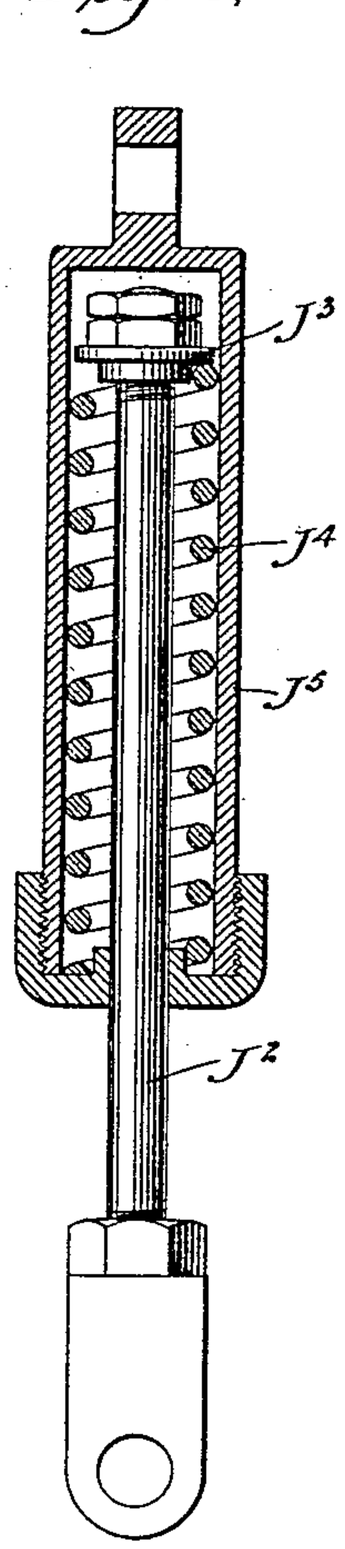

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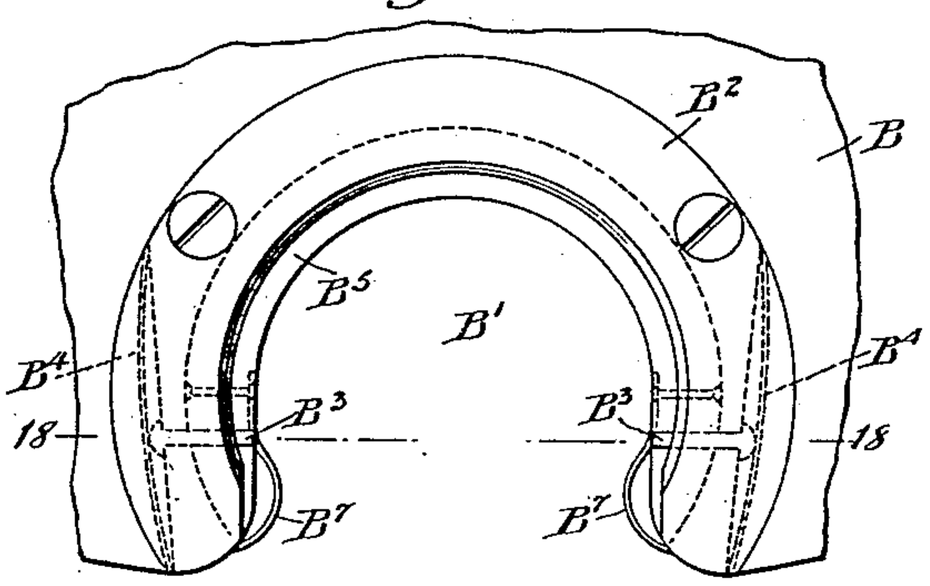

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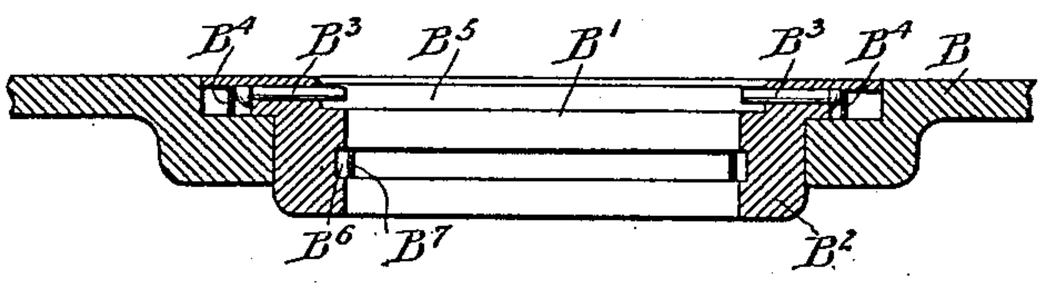

Witnesses
Edward Thorpe
Theo. J. Hoosier

Inventor
Henry L. Guenther
By his Attorneys Munn & Co

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Can making machines,
Head seaming.
Feeding and applying.

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No. 698,701. Patented Apr. 29, 1902.

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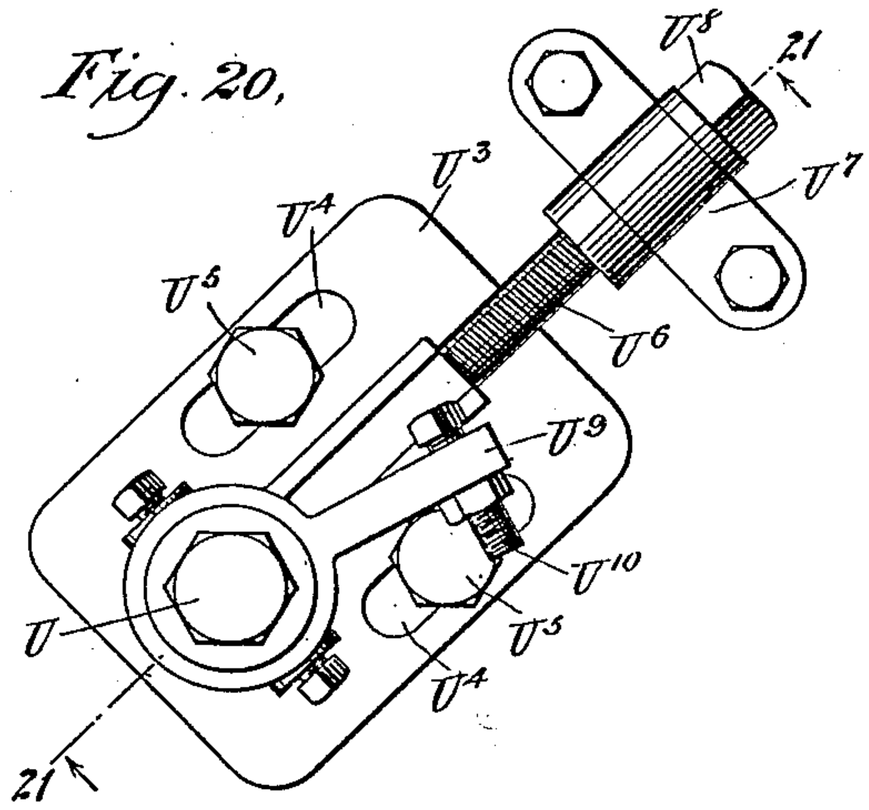
MACHINE FOR CAPPING AND COMPRESSING CANS.

(Application filed Jan. 20, 1900.)

(No Model.) 16 Sheets—Sheet 12.

Fig. 20.



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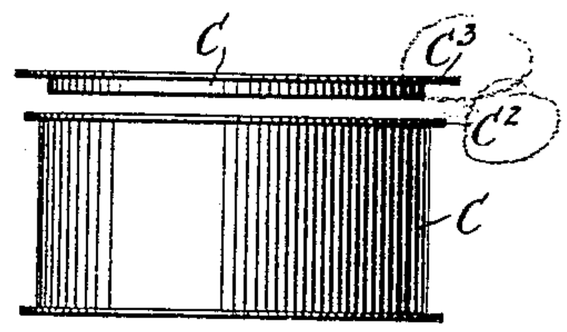

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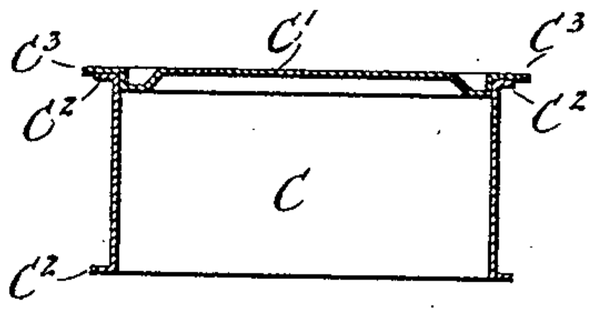

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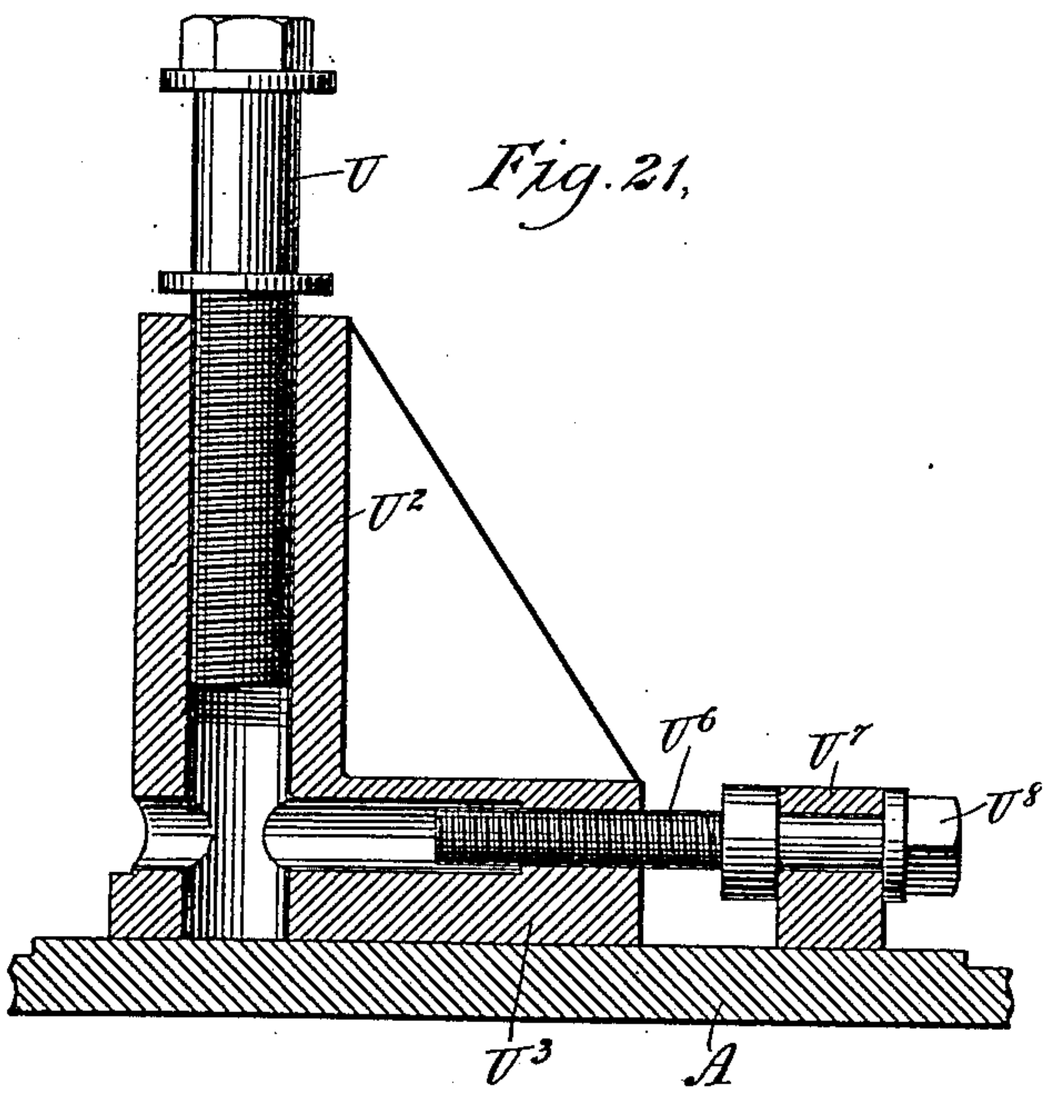

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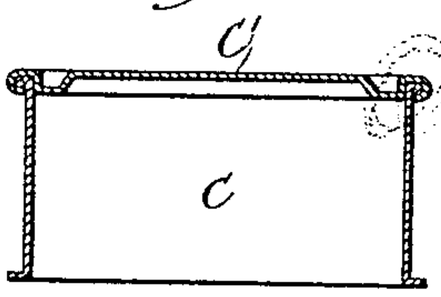

Witnesses
Edward Thorpe
Rud. J. Hoos

Inventor
Henry L. Guenther
By his Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

Can making machines,

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(Application filed Jan. 20, 1900.)

(No Model.) 16 Sheets—Sheet 13.

Fig. 25.

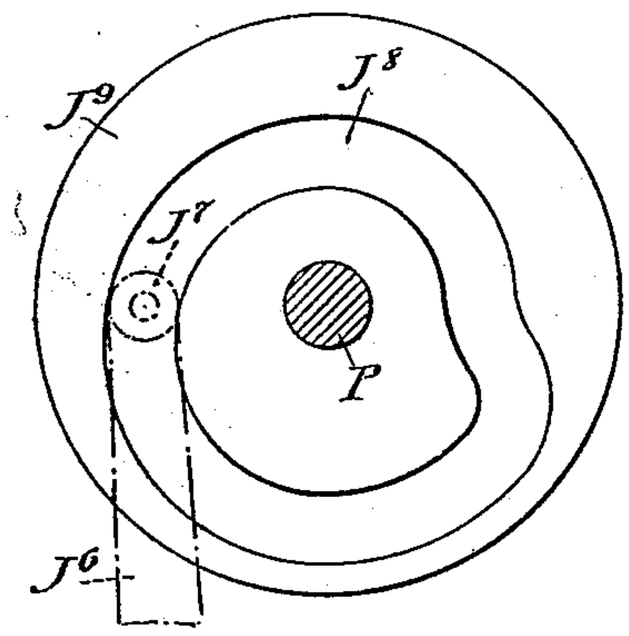


Fig. 26.

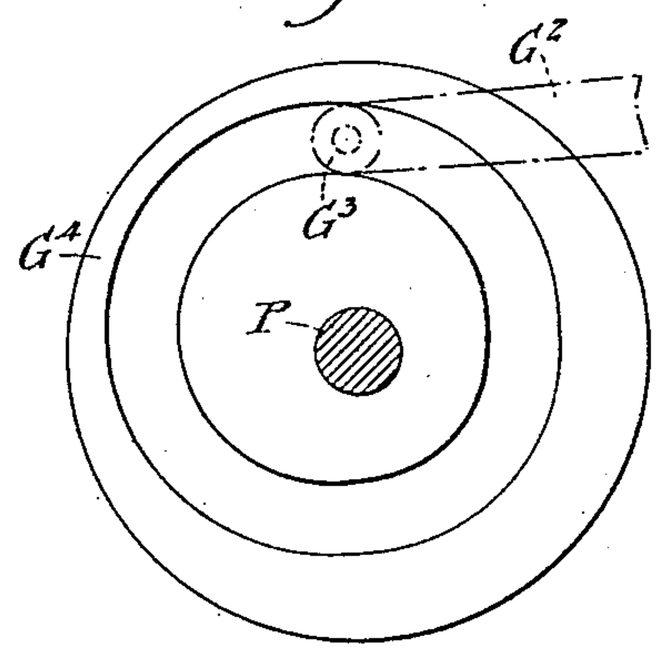


Fig. 27.

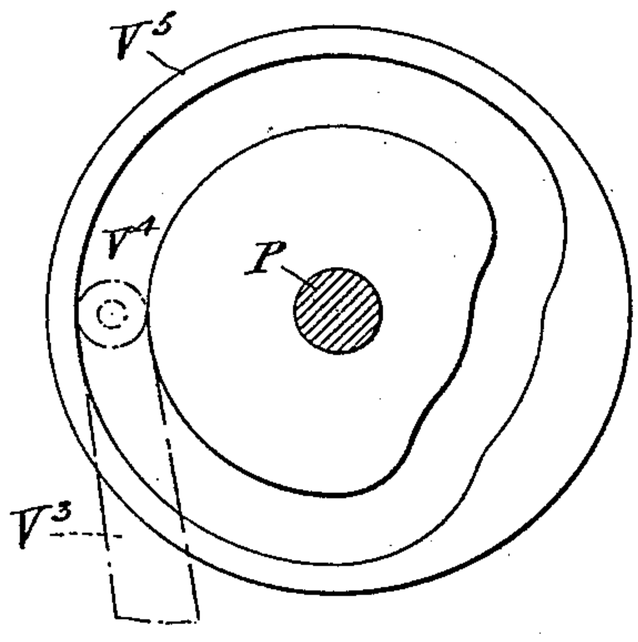


Fig. 28.

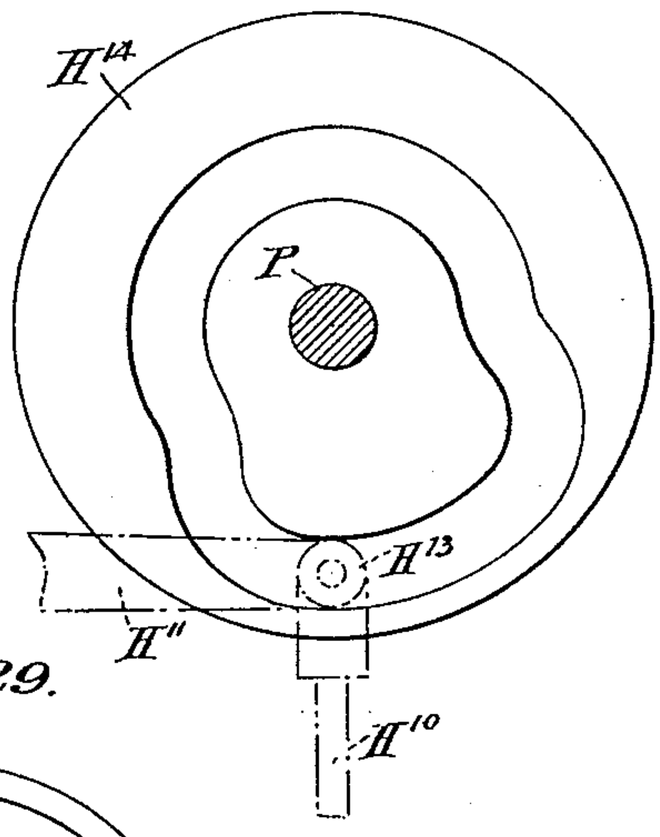
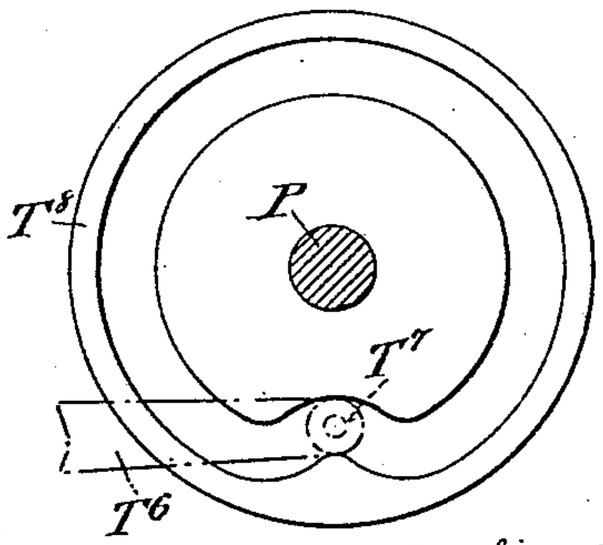


Fig. 29.



Witnesses
Edward Thorpe
Geo. J. Hosford

Inventor
Henry L. Guenther
By his Attorneys
Munn & Co.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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Head seaming,
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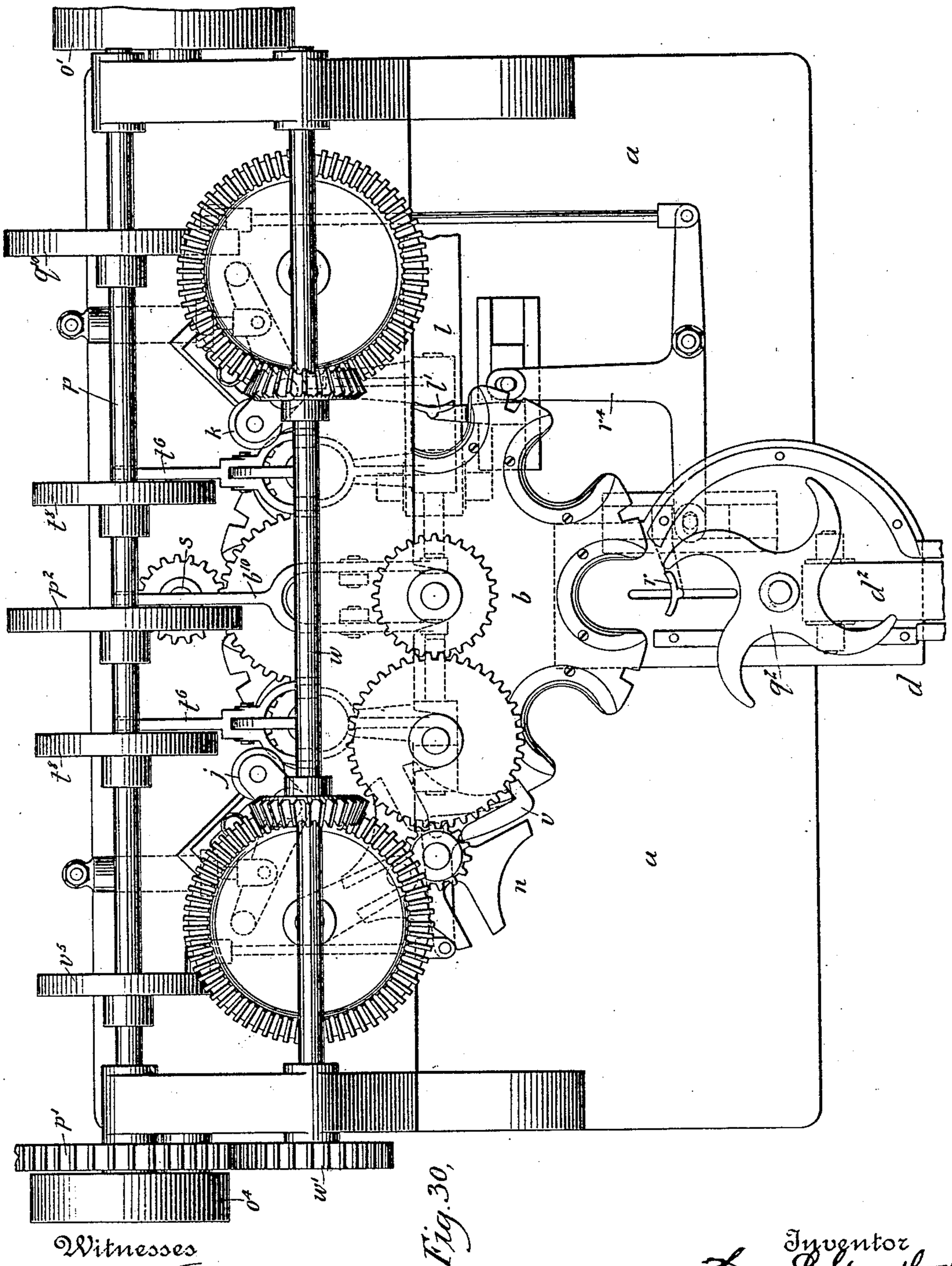

Fig. 30.

Witnesses
Edward Thorpe.
Chas. J. Hoosier.

Inventor
Henry L. Guenther
By his Attorneys
Munn & Co

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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MACHINE FOR CAPPING AND COMPRESSING CANS.

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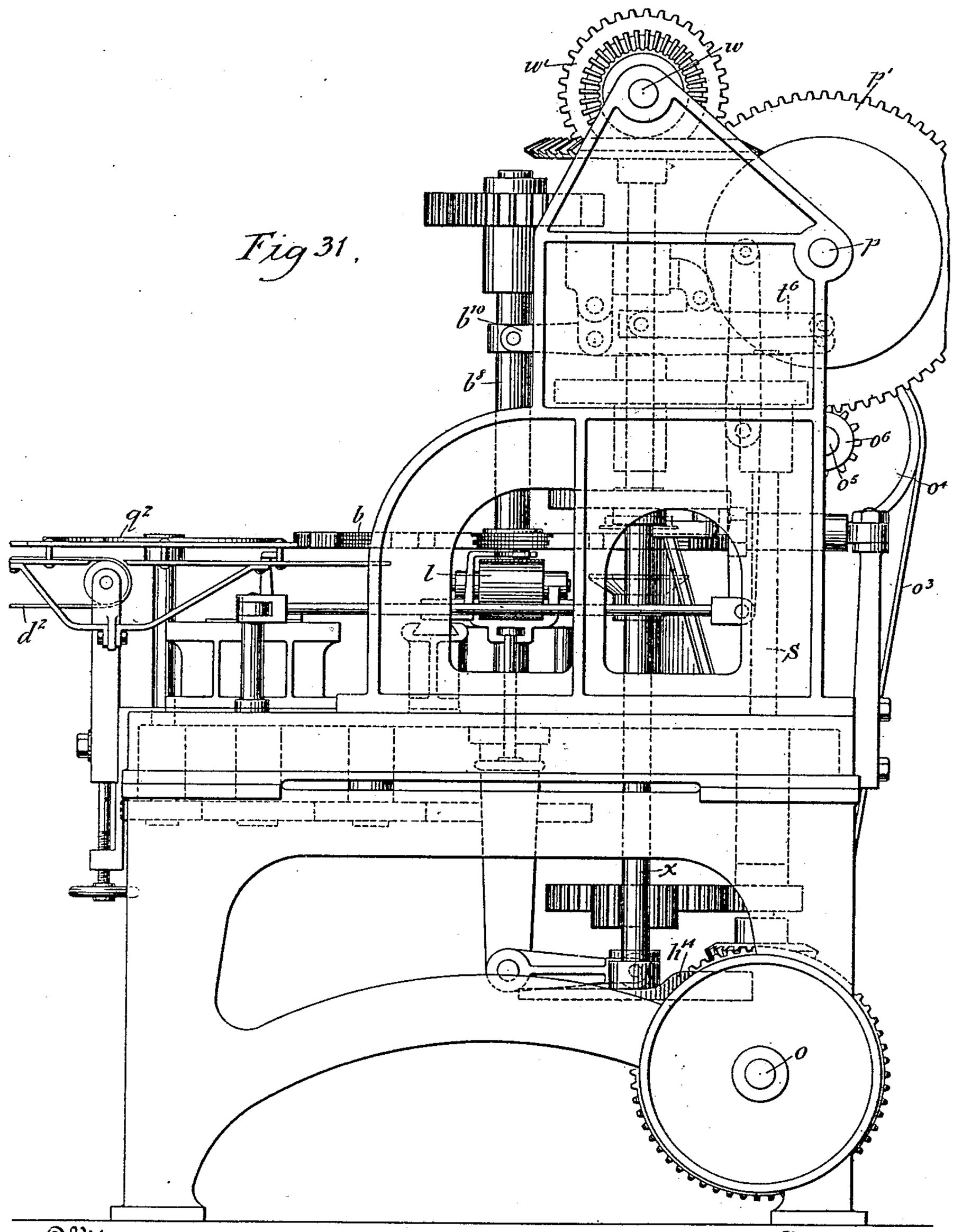
(No Model.) 16 Sheets—Sheet 15.

Fig 31.



Witnesses
Edward Thorpe
Chas. G. Hoskins

Inventor
Henry L. Guenther
By his Attorneys
Munn & Co.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

Can making Machines.

Head seaming,

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No. 698,701

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H. L. GUENTHER.

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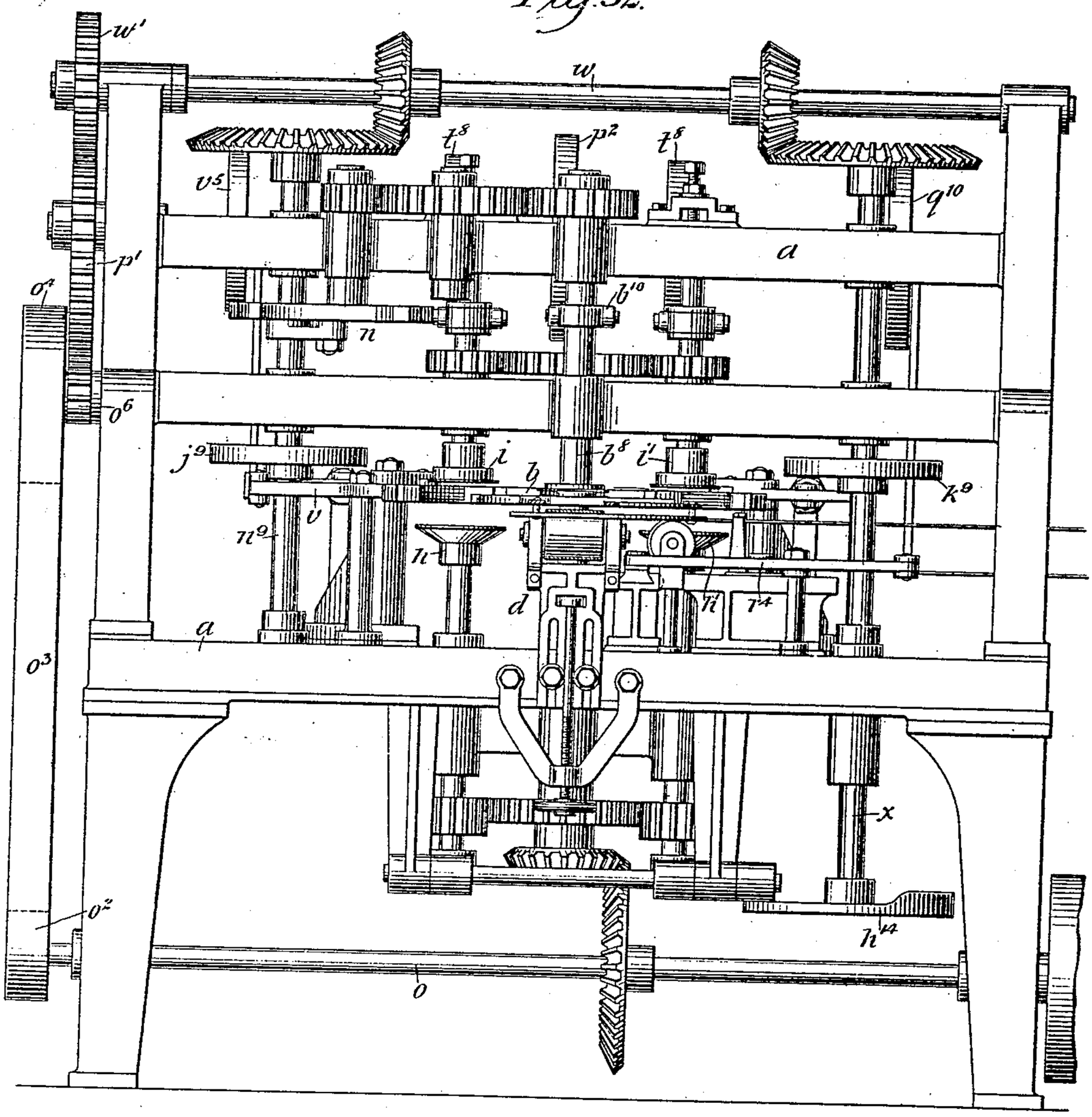
(Application filed Jan. 20, 1900.)

(No Model.)

16 Sheets—Sheet 16.

Fig. 32.



Witnesses

Edward Thorpe.

Rud. Hoard.

Inventor

Henry L. Guenther

By his Attorneys

Munn & Co

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HENRY L. GUENTHER, OF CHINOOK, WASHINGTON.

MACHINE FOR CAPPING AND COMPRESSING CANS.

SPECIFICATION forming part of Letters Patent No. 698,701, dated April 29, 1902.

Application filed January 20, 1900. Serial No. 2,145. (No model.)

To all whom it may concern:

Be it known that I, HENRY L. GUENTHER, a citizen of the United States, residing at Chinook, in the county of Pacific and State of Washington, have invented a new and Improved Machine for Capping and Compressing Cans, of which the following is a full, clear, and exact description.

The invention relates to a type of special machines employed for sealing the heads of cans used in packing various food products.

The object of the invention is to provide a new and improved machine for capping and compressing cans in such a manner that the can-heads are automatically placed in position on the can-bodies, and the flanges thereof are then double-seamed and rendered completely air-tight without the use of solder or other substances, packings, or the like, the finished can being automatically removed from the machine.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of my invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the improvement. Fig. 2 is a sectional plan view of the same on the line 2 2 in Fig. 3. Fig. 3 is a front elevation of the improvement with the can-body-feed mechanism shown in section. Fig. 4 is a transverse section of the same on the line 4 4 in Fig. 1. Fig. 5 is a like view of the same on the line 5 5 in Fig. 1. Fig. 6 is an elevation of the left hand side of the machine. Fig. 7 is an enlarged sectional front elevation of the revolving spindles, supports, and the crimping and compressing rollers for revolving the can-bodies and the heads and crimping and compressing the double seams thereof, the section being taken on the line 7 7 in Fig. 2. Fig. 8 is a sectional plan view of part of the mechanism for imparting a vertical sliding motion to a revolving spindle, the section being on the line 8 8 in Fig. 7. Fig. 9 is a plan view of the mechanism for pushing the can-bodies and can-heads into position and for ejecting the finished cans from the machine. Fig. 10 is a side elevation of the same. Fig. 11 is a plan view of the actuating mechanism for the can-body feed. Fig. 12 is a transverse section of part of the same. Fig. 13 is a front elevation of the same. Fig. 14 is an enlarged transverse section of the automatic can-head-feeding mechanism and the can-head platen, the section being on the line 14 14 in Fig. 2. Fig. 15 is an enlarged front elevation of the intermittent driving mechanism for the can-body-receiving platen, the section being on the line 15 15 in Fig. 1. Fig. 16 is an inverted sectional plan view of part of the same on the line 16 16 in Fig. 15. Fig. 17 is an enlarged plan view of the can-body-receiving platen. Fig. 18 is a sectional front elevation of the same on the line 18 18 in Fig. 17. Fig. 19 is an enlarged sectional plan view of the spring-link for the crimping-roller and the compressing-roller. Fig. 20 is an enlarged plan view of the adjustable bearing for the crimping and compressing rollers. Fig. 21 is a transverse section of the same on the line 21 21 in Fig. 20. Fig. 22 is a side elevation of the body and head before being assembled. Fig. 23 is a sectional side elevation of the can body and head assembled. Fig. 24 is a sectional side elevation of the can-body with the head crimped thereon. Figs. 25 to 29 are face views of some of the cams on the camshaft. Fig. 30 is a plan view of a modified form of the improvement. Fig. 31 is a side elevation of the same, and Fig. 32 is a reduced front view of the same.

The improved machine is mounted on a suitably-constructed frame A, and consists in its essential features of a horizontally-disposed can-body platen B, revolving intermittently in the direction of the arrow a' and having in its periphery notches B', with retaining devices for receiving and holding a cylindrical can-body C, and on the front of said platen B is arranged a can-body-feeding mechanism D for feeding the can-bodies to the notches B', and at the left of this feeding mechanism D is arranged a can-head-feeding mechanism E for feeding the can-heads C' to a can-head platen F, which brings a can-head C' at a time over a can-body C in the platen B, the can-head being then pressed upon the can-body by a vertically-reciprocating plun-

ger G. The platen B then brings the can-body with the head thereon between a rapidly-revolving support H and a rapidly-revolving spindle I, arranged in vertical alinement with each other and located at the rear left side of the platen B, said mandrel serving to rotate the can-body and its head in the platen-notch B′ and to subject the flanges C^2 C^3 of the body and head, respectively, to a crimping or double-seaming action by a crimping-roller J. The platen B next brings the crimped can between a second set of revolving supports H′ and spindles I′ to rotate the can and to subject the double seam C^4 to the action of a compressing-roller K to render the seam air-tight. The platen B finally brings the finished can to an ejecting device L for removing the can from the machine at the right-hand side of the platen. (See Figs. 1 and 2.)

In detail the construction of the machine is as follows:

The platen B illustrated in the drawings is provided with eight peripheral notches B′; but I do not limit myself to the number of notches employed, as it is evident that a platen having more or less notches may be constructed. Each notch B′ is circularly edged, and in each notch are screws or other means (see Figs. 17 and 18) for securing a rabbeted segmental clamping-ring B^2, which has the ends rounded off and flush with the convex corners of the notch. In the upper portion of each clamping-ring B^2 and preferably near the fronts thereof are arranged slidable clamping-dogs B^3, pressed outward by springs B^4, so as to project with their outer ends into a segmental recess B^5, formed in the upper part of the ring B^2 for the reception of the can-head, said dogs B^3 being adapted to press upon the peripheral surface of a can-head and hold it gripped to its seat. In the clamping-ring B^2, near the lower portion thereof and at the inner face, is arranged a groove B^6, in which is held a spring B^7, which projects outward on each side of the clamping-ring, the convex corners pressing upon the surface of a can-body to hold the same gripped in place, and thereby prevent the can-body from falling out of the notch while the platen is intermittently rotated. The intermittent rotary motion is given to the platen B by means of an intermittently-operating mechanism, shown in detail in Figs. 15 and 16 and arranged as follows: On the upper end of the shaft B^8, which carries the platen B and which shaft is mounted to rotate and to slightly move vertically in its bearings, is a spur-wheel N′, in mesh with a pinion N^2, secured on the upper end of a short shaft N^3, journaled in suitable bearings in the frame A and carrying at its lower end a detent-wheel N^4, formed in its under side with four radial recesses N^5 and at its peripheral surface with segmental notches N^6, as is plainly indicated in Figs. 15 and 16. The recesses N^5 are adapted to be engaged by a friction-roller N^7, journaled on the free end of an arm N^8, secured on a vertically-disposed shaft N^9, journaled in suitable bearings on the frame A, and on the shaft N^9 is formed or secured a locking-disk N^{10}, having a segmental notch in its peripheral surface for engaging the periphery of the wheel N^4 (see Fig. 16) at the time the friction-roller N^7 travels in a recess N^5. During the time the friction-roller N^7 is out of a recess the remaining peripheral portion of the disk N^{10} travels in a segmental notch N^6, so as to prevent the detent-wheel N^4 from accidentally rotating during the period of rest. The shaft N^9 is rotated continuously and is provided for this purpose at its lower end with a bevel gear-wheel N^{11}, in mesh with a bevel gear-wheel N^{12}, secured on the inner end of a shaft N^{13}, journaled in the frame A at the left side thereof, and said shaft N^{13} is driven from the main driving-shaft O of the machine, and which driving-shaft extends longitudinally and is journaled in suitable bearings in the lower portion of the frame A. The main driving-shaft O is provided at one end with the usual pulley O′, connected by belt with other machinery for imparting a rotary motion to the main shaft O, and on the other end of said shaft O is arranged a pulley O^2, (see Figs. 3 and 6,) connected by belt O^3 with a large pulley O^4, secured on the outer end of a shaft O^5, journaled in suitable bearings in the frame A at the left-hand side thereof, and on this shaft O^5 is secured a pinion O^6, in mesh with a gear-wheel N^{14}, secured on the shaft N^{13}. It is evident that when the machine is in operation and the main shaft O is rotated then a rotary motion is transmitted to the shaft N^{13} by the action described and the rotary motion of this shaft N^{13} is transmitted to the shaft N^9 by the bevel gear-wheels N^{12} and N^{11}, so that the arm N^8, with its friction-roller N^7, imparts an intermittent rotary motion to the detent-wheel N^4, secured on the shaft N^3, geared to the shaft B^8 of the platen B. The gearing described is so proportioned that when the main shaft O makes one revolution the platen B makes one-eighth of a revolution, so that a succeeding notch B′ occupies the position the previous notch had, the platen being locked in position during the period of rest by the disk N^{10}, the peripheral surface of which travels in a segmental notch N^6 of the detent-wheel N^4.

As previously mentioned, the shaft B^8 has a slight up-and-down motion in its bearings, and this movement is given to the shaft by a mechanism actuated from a cam-shaft P, extending longitudinally and journaled in the upper rear portion of the frame A. The cam-shaft P has a continuous rotary motion and is driven from the pinion O^6, previously mentioned, by a gear-wheel P′, secured on one end of the shaft P and meshing into said pinion O^6. (See Figs. 1 and 6.) On the cam-shaft P, near the middle thereof, is secured a cam-disk P^2, having on one face a cam-

groove P^3, engaged by a friction-roller B^9, journaled on the rear end of a transversely-extending lever B^{10}, fulcrumed on links B^{11}, hung on the frame A, and in the forked end of said lever B^{10} is carried a collar B^{12}, through which extends loosely the shaft B^8, and on the top of this collar rests a collar B^{13}, secured to the shaft B^8. When the machine is in operation and the cam-shaft P is rotated, then during each revolution of the cam P^2 a swinging motion is given to the lever B^{10}, so as to impart an up-and-down sliding motion to the shaft B^8 and the platen B. Normally the shaft, with its platen, is in a lowermost position, and it is only raised for the crimping and compressing operation to bring the tops of the can-heads C' against the under surfaces of the spindles I and I'. (See Fig. 7.)

The can-body-feeding mechanism D is next to be considered, special reference being had to Figs. 1, 2, 3, 4, 11, 12, and 13. This feeding mechanism D is provided with a conveyer having a conveyer-frame D', in which is mounted to travel an endless belt D^2, passing at its inner end over a pulley D^3 and at its outer end over a similar pulley. (Not shown.) The pulley D^3 is journaled in a bracket D^4, on which is also hung the inner end of the frame D', and said bracket D^4 is fitted to slide on a vertically-disposed post D^5, (see Fig. 4,) supported on the frame A to allow of adjusting the inner end of the conveyer up or down to bring the top run of the conveyer-belt D^2 to a proper level relatively to the height of the can-body and the position of the platen B. The bracket D^4 is adapted to be secured in place after the desired adjustment has been made by a set-screw D^6, and said bracket is vertically adjustable by means of a screw-rod D^7, attached to the bracket and screwing in a nut D^8, carried on the frame D', as is plainly shown in Fig. 4. On the lower end of the screw-rod D^7 is secured a hand-wheel D^9, adapted to be taken hold of by the operator to turn the screw-rod and move the bracket D^4 up or down on the post D^5 at the time the set-screw D^6 is loosened to make the desired adjustment, and when this is accomplished the set-screw D^6 is screwed up to permanently fasten the bracket in place on the post D^5.

Through suitable slots in one side of the conveyer-frame D' project bell-crank levers D^{10}, fulcrumed on the conveyer-frame and pivotally connected with each other by a transversely-extending rod D^{11}, pivotally connected at its inner end with an arm D^{12}, fulcrumed on a bearing A', formed part of the main frame A. A spring D^{14}, connected with one of the bell-crank levers D^{10}, serves to hold the same normally in an innermost position, as shown in Figs. 1 and 3, so that the can-bodies set vertically on the upper run of the conveyer-belt D^2 and traveling with the same are interrupted in their inward movement and held in position one behind the other and a suitable distance apart until the bell-crank levers receive a swinging motion in an outward direction to allow the latter to travel forward with the conveyer-belt D^2 until said bell-crank levers swing back to the innermost position to again interrupt the forward movement of the can-bodies. This movement of the bell-crank levers takes place simultaneously and at such time that a can-body can only travel inward from one bell-crank lever to the other before its inward movement is interrupted, and this movement of the bell-crank levers takes place during each one-eighth revolution of the platen B. In order to impart the desired motion to the bell-crank levers by means of the rod D^{11} and arm D^{12}, the latter is provided near its free end with an incline D^{13}, adapted to be engaged by an arm Q', held on a pusher-rod Q, mounted to slide longitudinally in the bearings A' A^2. The left-hand end of the pusher-rod Q is provided with a head Q^2, which is segmental in form to engage one side of the innermost can-body and push the same to the left over the conveyer-belt D^2 and upon a table A^3, supported by the frame A and arranged alongside the upper run of the conveyer-belt. The inner end of the right-hand side of the conveyer-frame D' is formed with a curved guideway D^{15}, reaching to the peripheral surface of the platen B to prevent a can-body from passing beyond the pusher-rod head Q^2, and on the top of the table A^3 is arranged an L-shaped guideway A^4 for preventing a can-body from moving in too far to the left when pushed from the conveyer-belt upon the table by the head Q^2. The guideway A^4 extends with its inner end to one side of the front notch B' in the platen B, so that a can-body can be readily pushed into said notch and be engaged by the retaining devices therein for holding the can-body in position in the front notch of the platen B.

In order to impart a sliding motion to the pusher-rod Q, the following device is provided: The arm Q', which is adapted to engage the incline D^{13} when moving into an extreme left-hand position, extends downward and connects with a second rod Q^3, (see details in Figs. 11, 12, and 13,) likewise mounted to slide longitudinally in the bearings A' A^2. The left-hand end of this rod Q^3 is pivotally connected by a link Q^4 with a bell-crank lever Q^5, fulcrumed on the frame A, and pivotally connected by a link Q^6 with the lower end of a lever Q^7, fulcrumed at or near its middle on the frame A, as shown in Fig. 12. On the upper end of this bell-crank lever Q^7 is held a friction-roller Q^8, traveling in a cam-groove Q^9, formed on one face of a cam-disk Q^{10}, secured on the cam-shaft P, previously referred to. When the cam-shaft P is rotated, the cam-disk Q^{10}, by its groove Q^9 and friction-roller Q^8, imparts a swinging motion to the lever Q^7, and the motion of the latter is transmitted by the link Q^6, the bell-crank lever Q^5, the link Q^4, the rod Q^3, and the arm Q' to the

pusher-rod Q, so that the latter first moves to the left and then back to its former position. During the movement to the left the head Q^2 pushes the innermost can-body from the conveyer-belt D^2 upon the table, as previously mentioned, and at the same time engages the incline D^{13}, so as to impart a rearward swinging motion to the arm D^{12} to move the link D^{11} transversely and swing the bell-crank levers out of engagement with the several can-bodies, so that the latter now travel forward with the conveyer-belt, on which they rest until the bell-crank levers swing back to their innermost former position to interrupt the forward movement of the can-bodies.

In order to push the can-body from the table A^3 rearward into the front notch B′ of the platen B, a segmental pushing-head R is provided, which simultaneously operates with similar pushing-heads E′ and L′, of which the pushing-head E′ serves to move a can-head from the can-head-feeding mechanism E to the can-head platen F, and the head L′ serves to push the finished can from the platen B upon a guideway for carrying the cans over to one side of the machine, the said head L′ forming part of the ejecting device L, previously mentioned.

The special mechanism for actuating the several pushing-heads R, E′, and L′ is illustrated in detail in Figs. 9 and 10, and is arranged as follows: The head R is secured on the upper end of a post R′, attached to a slide R^2, mounted to slide transversely in a guideway R^3, attached to the frame A. The slide R^2 is pivotally connected with an arm of a bell-crank lever R^4, fulcrumed on the main frame and connected by a link R^5 with a lever R^6, likewise fulcrumed on the frame, a friction-roller R^7 being on the left-hand side of said lever R^6 to engage a cam-groove R^8 formed on the under side of a disk-cam R^9, secured on the lower end of the shaft N^9, previously mentioned, and forming part of the intermittent driving device N. (Shown in Fig. 15.) Thus when the machine is in operation and the shaft N^9 is rotated, as previously explained, then the cam-disk R^9 imparts a swinging motion to the lever R^6, which by the link R^5 imparts a swinging motion to the bell-crank lever R^4, so that the slide R^2 is moved forward and backward and with it the post R′ and the head R. The head E′ is held on an arm E^2, secured directly to the slide R^2, so that this head moves in unison with the head R in the manner described. The rear end of the bell-crank lever R^4 is pivotally connected with a slide L^3, mounted to move longitudinally in a guideway L^4, secured to the frame A, and on said slide L^3 is attached a post L^2, which carries at its upper end the head L′ of the ejecting device L. The rocking motion given to the bell-crank lever R^4, as above mentioned, thus imparts a sliding motion to the slide R^2, as described, and also to the slide L^3, so that the head L′ moves longitudinally to push a finished can from the platen B at the right-hand side thereof. As shown in Figs. 1, 2, and 9, the post R′ extends through a transverse slot in the table A^3, and the latter is held vertically adjustable on posts A^5 by means of a screw-rod A^6, screwing in the frame A, a hand-wheel A^7 being at the lower end of said screw-rod to permit the operator to conveniently turn the latter and move the table A^3 up or down on the posts A^5. Set-screws A^8 serve to fasten the table A^3 in place on the posts A^5 after the desired adjustment is made, it being understood that the table A^3 is raised or lowered according to the level of the upper run of the belt D^2 of the can-body-feed mechanism.

The can-head-feeding mechanism E is arranged as follows: The disk E^3 is mounted to rotate loosely on a pin E^4, (see Fig. 14,) adjustably held on the main frame A, and on the under side of said disk is formed or secured a pulley E^5, over which passes a belt E^6, also passing over a pulley E^7, secured on the shaft N^9, previously mentioned, so that when the machine is in operation and the shaft N^9 is rotated then a rotary motion is transmitted by the pulley E^5 and belt E^6 to the disk E^3 to rotate the latter in the direction of the arrow *b*′. (See Fig. 1.) The forward right-hand portion of the disk E^3 is flush with a table A^9, forming part of the main frame A, and the can-heads placed on this table are pushed by an operator upon the revolving disk E^3, so that the latter carries the can-heads with it and under a shield or hood A^{10}, secured to the table A^9 and extending over the left portion as well as the rear end of the disk, as is plainly indicated in Figs. 1 and 2. On the shield A^{10} is secured a bell-crank lever E^8, carrying at one end a downwardly-extending pin E^9, adapted to move into the path of a can-head on the disk E^3, so as to hold the can-heads against further movement. While the disk E^3 keeps on rotating, a spring E^{10} presses on the bell-crank lever E^8 to normally hold the pin E^9 in the path of a can-head, the free end of the bell-crank lever then resting against a stop E^{11} on the hood A^{10}. The bell-crank lever E^8 is connected by a link E^{12} with a bell-crank lever E^{13}, fulcrumed on the right-hand side of the hood A^{10}, and this bell-crank lever is provided with a downwardly-extending pin E^{14}, which extends into the path of the can-body as the latter is pushed by the head Q^2 off the conveyer-belt D^2 upon the table A^3, adjacent to the guideway A^4. Thus when the can-body is pushed over upon the table A^3 it moves in contact with the pin E^{14}, and thus imparts a swinging motion to the bell-crank lever E^{13}, whereby said lever imparts a like motion to the link E^{12} and the bell-crank lever E^8 to swing the pin E^9 outward away from the stop E^{11} and against the tension of the spring E^{10} to allow a can-head to move forward with the disk E^3 and in front of the head E′, then in a forward position. As soon as a can-body has moved past the pin E^{14} then

the spring E^{10} instantly pulls the bell-crank lever E^8 back to its former position, so that the pin E^9 moves into the path of the next-following can-head, and thus again holds the several can-heads stationary on the revolving disk E^3. The return movement of the bell-crank lever E^8 also causes a return movement of the bell-crank lever E^{13}. The can-head now in front of the head E′ is pushed by the latter transversely at the same time the head R moves the can-body into the front notch B′ of the platen B, and this can-head moved by the pusher E′ passes into a segmental notch F′, formed in the can-head platen F. (See Fig. 1.) In the side wall of each notch F′ is held a clamping-bolt F^2, adapted to engage the flange of a can-head and hold the latter in position in the notch F′ of the platen F, and this bolt F^2 is pressed on by a spring F^3. (See Figs. 1 and 2.) The can-heads while passing from the disk E^3 into a notch F′ pass upon an auxiliary table A^{11}, carried by the frame A and extending under the platen F, as indicated in Fig. 14, so that the can-head is not liable to drop out of the notch while the platen F is intermittently rotated in the direction of the arrow *c′* to bring the can-head over a can-body carried in the second notch B′ of the platen B and allow the plunger G to press the said can-head down upon the can-body. (See Fig. 23.) The platen F, as shown, has four notches F′ and makes a one-fourth revolution to each one-eighth revolution of the platen B, the platen F being for this purpose secured on the lower end of a shaft F^4, journaled in suitable bearings in the main frame A and carrying at its upper end a gear-wheel F^5, in mesh with an intermittent gear-wheel F^6, meshing with the gear-wheel N^2, forming part of the intermittent driving mechanism N for the platen B. The gear-wheels N^2, F^6, and F^5 are alike in diameter, so that the shaft F^4 rotates at the same rate of speed as the shaft N^3, and as the gear-wheel N^2 is one-half the size of the gear-wheel N′ the shaft B^8, and consequently the platen B, makes a one-eighth revolution to a one-fourth revolution of the platen F.

The head of the plunger G is secured or formed on the lower end of a vertically-disposed shaft G′, mounted to slide in suitable bearings on the frame A, and the upper end of said shaft is pivotally connected with a transversely-extending lever G^2, fulcrumed on the frame A and carrying at its rear end a friction-roller G^3, engaging a cam-groove in a cam-disk G^4, secured on the cam-shaft P. When the machine is in operation and the cam-shaft P is rotated, the cam-disk G^4 and friction-roller G^3 impart a swinging motion to the lever G^2 to move the plunger-shaft G′ and the plunger G downward and upward, so that said plunger G pushes at the right moment the can-head on the can-body.

The revolving supports H H′ are alike in construction and operate in unison, so that it suffices to describe but one in detail. Each of the supports is provided with a head H^2 for engaging the lower end of a can-body C, as is plainly shown in Fig. 7, and this head H^2 is secured on a shaft H^3, mounted to turn and to slide vertically in suitable bearings arranged on the main frame A. Each of the two shafts H^3 carries a gear-wheel H^4, in mesh with an idler-wheel H^5, mounted to turn on a suitable stud held on the frame A, the width of this gear-wheel being somewhat in excess of that of the gear-wheels H^4, so that the latter can move vertically with their shaft H^3 without moving out of mesh with the gear-wheel H^5. The gear-wheel H^5 meshes at its rear with a gear-wheel S′, secured on shaft S, journaled in suitable bearings on the main frame A, a bevel gear-wheel S^2 being on the lower end of said shaft and in mesh with a bevel gear-wheel S^3 on the main driving-shaft O. Thus when the machine is in operation and the shaft O rotates it transmits a rotary motion by the gear-wheels S^3 S^2 to the shaft S, and the latter, by the gear-wheel S′, imparts a rotary motion to the gear-wheel H^5, meshing with both gear-wheels H^4, so that the two supports H H′ are simultaneously and uniformly rotated.

In order to impart a sliding motion in a vertical direction to each of the shafts H^3, I provide the lower ends thereof with loose collars H^6, each arranged on the respective shafts between a fixed collar and the hub of the gear-wheel H^4. The collars H^6 are hung in the forks of arms H^7, secured on a longitudinally-extending rock-shaft H^8, journaled in suitable bearings on brackets A^{12}, attached to the main frame A. On the shaft H^8 is secured a transversely-extending arm H^9, pivotally connected at its rear end by a link H^{10} with a rock-arm H^{11}, fulcrumed at H^{12} in a bracket on the main frame, and said rock-arm H^{11} is provided at its free end with a friction-roller H^{13}, engaging a cam-groove in the face of a cam-disk H^{14}, attached to the cam-shaft P. Thus when the machine is in motion and the cam-shaft P rotates the cam H^{14} imparts an up-and-down swinging motion to the arm H^{11}, which, by the links H^{10}, imparts a swinging motion to the arm H^9, and the latter, by the shaft H^8, the arm H^7, and the collar H^6, imparts an up-and-down sliding motion to the shaft H^3, and consequently to the supports H H′, to move the top surfaces thereof in contact with the lower edges of the can-bodies.

The spindles I and I′ are also alike in construction and operation, and hence it suffices to describe but one in detail. Each of the spindles is provided with a spindle-head I^2, each on the lower end of a vertically-disposed shaft I^3, mounted to rotate in suitable bearings in the main frame A, but held against sliding motion therein. The heads of the spindles are each formed with a depending annular flange i^2 to engage the annular recess in the top of the can-head, and this flange has a straight outer face, which forms an abut-

ment or bearing when the flange of the can and can-head are compressed by the crimping and compressing rollers. On the shafts I^3 of the two spindles I I' are secured gear-wheels I^4, in mesh with opposite sides of an intermediate gear-wheel I^5, journaled on the main frame and in mesh with a gear-wheel S^4, secured on the upper end of the shaft S. Thus when the latter is rotated, as previously mentioned, it imparts a rotary motion by the gear-wheels S^4 and I^5 to the gear-wheels I^4 and to the shafts I^3 of the two spindles I I', so as to rotate the same in unison with the mandrels H H'. In order to hold the shafts I^3 against an upward sliding movement, the upper ends of the shafts are engaged by set-screws I^6 in caps I^7, attached to the main frame, as is plainly shown in Figs. 1 and 7. The shafts I^3 are made hollow in their lower portions to receive pusher-rods T, each of which is provided at its lower end with a head T', adapted to engage the top of the can-head, at the center thereof, and push the can-body with the crimped or compressed seam down into a lowermost position in the clamping-ring B^2.

It is understood that when the shaft B^8, with the platen B, is raised for the crimping and compressing operation the can bodies and heads are moved upward with the platen, the flanges of the can body and head resting in the bottom of the recess in the clamping-ring. When the platen moves up, the tops of the can-heads are brought against the under surface of the spindles I I', the flanges i^2 of the spindle-heads engaging the grooves or recesses in the can-heads. The revolving supports H H' then move upward against the bottoms of the cans, holding them in position against the spindles. The platen then moves downward, leaving the flanges of the can in position to be acted on by the crimping and compressing rollers. After the crimping and compressing operations the revolving supports H H' move downward, and the pusher-rods T then move downward in the spindles, pushing the can-bodies from the heads of the spindles and seating the flanges in the recesses in the clamping-rings. The head T' when in a lowermost position is brought down far enough to free the can-well from the spindle-head I^2; but the rod T is free to move upward to bring the head T' into a recess in the lower end of the shaft I^3 and move the under face of the head T' out of alinement with the under face of the head I^2. Near the upper end of each rod T is secured a bar T^2, held in a ring T^3, mounted to turn loosely in a collar T^4, loosely surrounding the shaft I^3, as is plainly shown in Figs. 7 and 8, said bar T^2 extending through vertically-disposed slots I^8, formed in the corresponding shaft I^3. The collar T^4 is hung on centers T^5, carried in the fork of a lever T^6, fulcrumed on the main frame A and extending transversely the rear end of each lever T^6, carrying a friction-roller T^7, engaging a cam-groove in cam-disk T^8, secured to the cam-shaft P. Thus when the machine is in operation and the cam-shaft P is rotated then the two cam-disks T^8 simultaneously impart a swinging motion to the levers T^6, so that the collars T^4 are moved up and down, and as the rings T^3 are mounted in said collars they move with the same, and thus carry the bars T^2 along. As the bars are held in the rods T, the latter are moved up and down, without, however, affecting the position of the shafts I^3, as the said bars are free to slide in the slots I^8 of said shafts I^3. From the foregoing it is evident that when the shafts I^3 are rotated the rods T are rotated with the same, owing to the connection of the bars T^2; but the rods T have an independent sliding movement in a vertical direction for engaging the heads T' with the can-heads to push the can-heads back down into position after the crimping and compression of the seams has taken place.

The crimping-roller J and the compressing-roller K are mounted to turn loosely on bell-crank levers J' and K', respectively, fulcrumed on vertically-disposed pins U U', adjustably held, as hereinafter more fully described. The bell-crank levers J' and K' are pivotally connected with transversely-extending links J^2 K^2, carrying at their rear ends adjustable heads J^3, (see Fig. 19,) engaging one end of a spring J^4, coiled around the corresponding link J^2 or K^2 within casings or cylinders J^5 K^5, pivotally connected at their rear ends with levers J^6 K^6, respectively, fulcrumed on the main frame and extending upwardly to carry at their upper ends friction-rollers J^7 K^7 in engagement with cam-grooves J^8 K^8, respectively, formed on the faces of the cam-disks J^9 K^9, secured to the cam-shaft P. Thus when the machine is in operation and the cam-shaft P is rotated said cam-disks J^9 K^9 will simultaneously impart a swinging motion to the levers J^6 K^6, whereby the cylinders J^5 K^5 are moved rearwardly, together with the links J^2 and K^2, to impart a swinging motion to the bell-crank levers J' K' to move the crimping-rollers J K against the flanges C^2 C^3 of the assembled can-body and can-head to form a double seam, as indicated in Fig. 24. The movement of the other lever K' causes the compressing-roller K to press the double seam C^4 and render the same completely air-tight to prevent leakage when the can is used. It is understood that the outward pull of either cylinder J^5 or K^5 causes a compression of the spring J^4, so that the yielding connection between the levers J' or K' and the corresponding lever J^6 or K^6 allows the crimping-roller J and the compressing-roller K to yield to any irregularities during the crimping and compressing operation.

Each of the pins U U' screws in a bearing U^2, (see Figs. 2, 20, and 21,) having a base U^3, formed with slots U^4, engaged by bolts U^5, secured to the frame A, said base resting on a horizontal portion of the main frame to al-

low of moving the bearing U^2 at an angle of about forty-five degrees forward or rearward to bring the corresponding roller J or K in proper position relatively to the platen B, as will be readily understood by reference to Fig. 2. The bearing U^2 is engaged by a screw-rod U^6, mounted to rotate in a bearing U^7, carried by the main frame A, and the outer end U^8 of said screw-rod U^6 is made polygonal for the application of a wrench or other tool to turn said screw-rod and move the bearing U^2 forward or backward to make the desired adjustment of the levers J′ K′ and the rollers J and K for the purpose mentioned. On the bearing U^2 is arranged an arm U^9, carrying a stop-screw U^{10}, adapted to be engaged by a pin J^{10} or K^{10} on the corresponding lever J′ or K′ to limit the swinging motion of the said levers when the cylinders J^5 K^5 move rearward by the action of the cam-disks J^9 K^9.

It is understood that when the machine is in operation a can after being crimped by the roller J is moved during the next two-eighths of a revolution of the platen B to the corresponding roller K for compressing the seam made by the crimping-roller J, which latter has its peripheral surface formed with an angular groove (see Fig. 7) to cause the flanges C^3 C^2 to turn downward and inward, with the wider flange C^3 on the outside of the flange C^2, the latter doubling up to form a double seam. This double seam is subjected to greater pressure by the corresponding roller K, which has a straight peripheral face, as is plainly shown in Fig. 7. The can thus finished is during the next one-eighth revolution brought to the ejecting device L, the head L′ of which pushes the can outward out of the retaining device in the corresponding notch B′ upon a chute L^5, leading sidewise to a suitable place of discharge, the chute having side flanges L^6 for preventing the cans from leaving the chute in a transverse direction, the cans being also prevented from tipping over by an arm L^7, secured to the main frame A and extending over the chute in a longitudinal direction, the inner end reaching over the platen B. (See Figs. 1 and 2.) In the bottom of the chute L^5, near the inner end thereof, is arranged a longitudinally-extending slot L^8, into which is adapted to pass the post L^2, carrying the pusher-head L′. (See Fig. 9.)

In order to prevent the platen B from rotating accidentally, a locking device is provided having a bell-crank lever V fulcrumed on the main frame A, a lug V′ being on the end of one arm of the lever to engage a corresponding notch B^{12} (see Figs. 1 and 2) in the peripheral surface of the platen B, a notch B^{12} being between adjacent notches B′. The bell-crank lever V is connected by a transversely-extending link V^2 with the lower end of a lever V^3, fulcrumed on the main frame and carrying at its upper end a friction-roller V^4, engaging a cam-groove in the face of a cam-disk V^5, secured on the cam-shaft P, so that when the latter is rotated said cam V^5 imparts a swinging motion to the lever V^3, and this motion is transmitted by the link V^2 to the bell-crank lever V to cause the lug V′ thereof to engage and disengage the corresponding notch B^{12} on the platen B. Thus during the period of rest of the platen the lug V′ is in engagement with a notch, and immediately previous to imparting an intermittent rotary motion to the disk the bell-crank lever V is caused to swing and move the lug V′ out of engagement with the notch B^{12} to unlock the platen B and allow the same to turn one-eighth of a revolution, so as to bring the next following notch opposite the lug V′. As soon as the platen B comes to rest the lever V receives a return swinging motion from the cam V^5, so that the lug V′ engages the opposite notch B^{12} to lock the platen during the next period of rest.

The operation is as follows: When the platen B is at rest, the several parts are in the position illustrated in Figs. 1, 2, 3, 4, 5, and 6, with a can-body in position to be pushed by the head R into the front notch B′ of the platen and with the can-head C′ engaged by the head E′, to be pushed from the disk E^3 into the front notch F′ of the platen F. At the same time the plunger G forces a can-head down upon a can-body held in the second notch B′ at the left of the platen B from the second or registering notch F′ of the platen F, while a can-body with a head pressed thereon is held in the third notch B′ of the platen B and a similar can and head is between the support H and the spindle I, both of which are now rotating, and with the support H in an uppermost position to hold the can-head C firmly in contact with the under side of the head I^2 of the spindle I. The crimping-roller J at the same time engages the flanges C^2 and C^3 of this can-body and can-head to crimp the said flanges, as above described, and form a double seam. While this operation goes on, a crimped can-body and can-head are held in the rear notch B′ of the platen B, (see Fig. 2,) and a similar can body and head are held in the next following notch between the support H′ and the head I^2 of the spindle I′, the support H′ being in an uppermost position to firmly engage the can-head C′ with the head I^2. The compressing-roller K now presses on the double seam of the can, so as to render the seam air-tight, it being understood that during the crimping and compressing operation the can-body and its head are revolved at a high rate of speed, while the crimping-roller J and the compressing-roller K are held with a uniform pressure against the flanges of the seam of the can. While this takes place, the head L′ of the can-ejecting device moves to the right to push a finished can out of the right-hand notch of the platen B into the chute L. The last notch adjacent to the locking bell-crank lever V is now empty and ready to receive a

new can-body when this notch moves into a forward front position during the next one-eighth revolution of the platen B. It is understood that when a can-body C has been pushed into the front notch by the head R and the can-head has been placed in position on a can-body by the plunger G and the rollers J and K have crimped and compressed the seam and the head L′ has ejected a can, as described, then the platen B is unlocked by the lever V, and a one-eighth revolution is given to the platen B by the intermittent transmitting mechanism N, as previously described. During this movement of the platen the head R moves back into an outermost position, the plunger G into an uppermost position, and the rollers into an outermost position away from the spindles and supports, and at the same time the supports move downward and the rods move downward to push the can heads and bodies back into the seats in the clamping-rings B^2. The innermost can-body on the belt D^2 is now opposite the head Q^2 of the pusher-rod Q, and the latter is now moved longitudinally to push the can-body upon the table A^3 in front of the head R, and during this operation the can-body actuates the bell-crank lever E^8, so as to release the can-heads and allow the most forward can-head to pass against the guide E^{15} in front of the head E′. The can-body and can-head are now pushed by the heads R and E′ transversely into the corresponding notches of the platens B and F, and the above-described operation is repeated. It is understood that the machine can be used for first placing one head on the cylindrical can-body and crimping the flanges thereof, as described, and then when the can is filled it is again sent through the machine to place the other head or cover upon the body and to crimp and compress the flanges thereof to form a double seam, so that the filled can finally leaves the machine in a completely hermetically sealed condition, no solder, packing, or other material or device being employed for rendering the can proof against leakage and at the same time airtight.

In the modified form shown in Figs. 30, 31, and 32 the can-body-feeding mechanism, the can-head platen, and the plunger are completely dispensed with, and in this the can-head is put on the can-body by hand or by a separate machine, and such assembled can body and head are placed on an endless conveyer-belt d^2, which forms part of the can-feeding mechanism d, said belt d^2 carrying the cans successively to a feed-wheel q^2, which takes the place of the pusher Q^2 of the other machine, and which wheel is intermittently rotated by a train of gear-wheels from the shaft b^8 of the platen b, so that the wheel and the platen rotate intermittently in unison. The can-body is pushed from the feed-wheel q^2 into a notch in the platen b by the head r, operating in conjunction with the ejecting-head l' of the ejecting device l, said heads being actuated from a bell-crank lever r^4, connected with a cam-disk q^{10} on the cam-shaft p. The platen b receives an intermittent rotary motion by the intermittent transmission device n, similar in construction to that described relatively to the other machine and driven from a separate shaft w, journaled in the upper portion of the main frame a and connected by a gear-wheel w' with a cam-shaft p, journaled in the main frame a, and which shaft is connected by pulleys o^4 and o^2 and a belt o^3 with the main driving-shaft o, having fast and loose pulleys o' connected with other machinery for imparting a continuous rotary motion to the shafts o, p, and w. The crimping-roller j operates in conjunction with a revolving support h and spindle i, and the compressing-roller k operates in conjunction with the revolving support h' and the revolving spindle i'. The supports h h' and the spindles i i' are connected by gearing with the vertical shaft s, driven from the main shaft o, as above explained in reference to the other machine, and the supports h h' receive a vertical sliding motion from a cam h^{14}, secured on a vertically-disposed shaft x, geared with the shaft w, previously mentioned, it being understood that the shafts w and x are additions to this machine and not found in the other machine. The levers carrying the crimping-roller j and the compressing-roller k are actuated from cams j^9 and k^9, of which the cam j^9 is secured on the shaft n^9 of the intermittent transmission device n, while the cam k^9 is secured on the shaft x. Otherwise the construction for moving and mounting the said levers is the same as before referred to. The rods in the spindles i i' are actuated by levers t^6 from cam-disks t^8 on the cam-shaft p, and this mechanism is the same as previously described, and the cam-disk p^2 and the lever b^{10} are employed for imparting a limited vertical motion to the platen b for the purpose previously mentioned. The platen b is locked during this period of rest by a lever v, actuated from a cam v^5 on the shaft p, the same as the corresponding lever in the machine above described. When the machine is in operation, the assembled can-body and can-head are successively fed into the notches of the platen b, and the flanges of said can body and head are crimped by the roller j and then compressed on the roller k, and the can-body is finally ejected by the head l' upon an endless conveyer-belt for carrying the finished cans to one side of the machine.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A machine of the class described, comprising an intermittently-rotating and vertically-movable platen for carrying the can bodies and heads, means for engaging and revolving the can bodies and heads in the platen, means for imparting a vertical move-

ment to the platen, and means for crimping and compressing the can-flanges while the can body and head are being rotated, substantially as shown and described.

2. A machine of the class described, comprising an intermittently-rotating and vertically-movable platen for carrying the can bodies and heads, means for revolving the can body and head in the platen, means for imparting a vertical movement to the platen, and a crimping-roller having its peripheral surface formed with an angular groove for engaging the can-flanges and crimping the same while the body revolves to form a double seam, substantially as described.

3. A machine of the class described, comprising an intermittently-rotating and vertically-movable platen having retaining means for holding the can bodies and heads and for allowing the same to be revolved in the platen, means for engaging the can body and head to revolve the same in said retaining means, means for imparting a vertical movement to the said platen, a crimping-roller having its peripheral surface formed with an angular groove for engaging the can-flanges to crimp the same while the can body and head are being rotated, the said angular groove causing the flanges to turn downward and inward to form a double seam, and a compressing-roller to compress the seam previously formed by the said crimping-roller, substantially as shown and described.

4. A machine of the class described, comprising an intermittently-rotating and vertically-movable platen having retaining means for holding the can bodies and heads and for allowing the same to be revolved in the platen, a plurality of devices for successively engaging the can body and head to clamp and to rotate the same, means for imparting a vertical movement to the platen, a crimping-roller for engagement with the can-flanges to crimp the same and operating in conjunction with one of the said clamping and rotating devices, and a compressing-roller operating in conjunction with the other clamping and rotating device for engaging and compressing the seam formed by the said crimping-roller, substantially as shown and described.

5. A machine of the class described, comprising an intermittently-revolving can-body-receiving platen having retaining means for holding the body and allowing the same to be revolved in the said means, a can-head-receiving platen having intermittent motion in unison with the said can-receiving platen, and adapted to register therewith to bring a can-head over a can-body, and a reciprocating plunger for engaging the can-head and pressing the same out of the can-head-receiving platen onto the end of the can-body, substantially as shown and described.

6. A machine of the class described, comprising an intermittently-revolving can-body-receiving platen having retaining means for holding the body and allowing the same to be revolved in the same means, a can-head-receiving platen having intermittent motion in unison with the said can-receiving platen, and adapted to register therewith to bring a can-head over a can-body, a reciprocating plunger for engaging the can-head and pressing the same out of the can-head-receiving platen onto the end of the can-body, and a table under the registering portions of the said platens, to sustain the can-body while the can-head is forced upon it by the said plunger, substantially as shown and described.

7. A machine of the class described, comprising an intermittently-rotatable and vertically-movable can-body-receiving platen, having notches in its periphery and retaining means for holding a can-body in a notch, and for allowing the said can-body to be turned in the said notch, a revoluble support, a revoluble spindle in alinement with the said support and both in alinement with a platen-notch, to engage the can body and head at the bottom and top and revolve the same, means for rotating the support and spindle in unison, means for raising the platen and a crimping-roller for engagement with the flanges of the can body and head the said crimping-roller having its peripheral surface formed with an angular groove, substantially as shown and described.

8. A machine of the class described, comprising an intermittently-rotatable can-body-receiving platen, having notches in its periphery and retaining means for holding a can-body in a notch, and for allowing the said can-body to be turned in the said notch, a revoluble support, a revoluble spindle in alinement with the said support and both in alinement with a platen-notch, to engage the can body and head at the bottom and top and revolve the same, means for rotating the support and spindle in unison, a crimping-roller for engagement with the flanges of the can body and head, and means for imparting a reciprocating motion to the said platen in an axial direction, substantially as shown and described.

9. A machine of the class described, comprising an intermittently-rotatable can-body-receiving platen, having notches in its periphery and retaining means for holding a can-body in a notch, and for allowing the said can-body to be turned in the said notch, a revoluble support, a revoluble spindle in alinement with the said support and both in alinement with a platen-notch to engage the can body and head at the bottom and top and revolve the same, means for rotating the support and spindle in unison, a crimping-roller for engagement with the flanges of the can body and head, and means for imparting a reciprocating motion to the said platen in an axial direction, the said means comprising a collar loosely mounted on the shaft, a stop on said shaft with which the collar engages, a le-

ver carrying said collar, and means for swinging the lever, substantially as shown and described.

10. A machine of the class described, comprising an intermittently-rotatable can-body-receiving platen, having notches in its periphery and retaining means for holding a can-body in a notch, and for allowing the said can-body to be turned in the said notch, a revoluble support, a revoluble spindle in alinement with the said support and both in alinement with a platen-notch, to engage the can body and head at the bottom and top and revolve the same, means for rotating the support and spindle in unison, a crimping-roller for engagement with the flanges of the can body and head, means for raising the platen and means for exerting a yielding pressure on the said crimping-roller, substantially as shown and described.

11. A machine of the class described, comprising an intermittently-rotatable can-body-receiving platen, having notches in its periphery and retaining means for holding a can-body in a notch, and for allowing the said can-body to be turned in the said notch, a revoluble support, a revoluble spindle in alinement with the said support and both in alinement with a platen-notch, to engage the can body and head at the bottom and top and revolve the same, means for rotating the support and spindle in unison, a crimping-roller for engagement with the flanges of the can body and head, and a rod held to reciprocate in the said spindle to press the said can-head, substantially as shown and described.

12. A machine of the class described, comprising an intermittently-rotatable can-body-receiving platen, having notches in its periphery and retaining means for holding a can-body in a notch, and for allowing the said can-body to be turned in the said notch, a revoluble support, a revoluble spindle in alinement with the said support and both in alinement with a platen-notch to engage the can body and head at the bottom and top and revolve the same, means for rotating the support and spindle in unison, a crimping-roller for engagement with the flanges of the can body and head, a rod held to reciprocate in the said spindle to press the said can-head, a collar loosely surrounding the spindle-shaft, a ring mounted to turn loosely in said collar, a bar secured to the rod near the upper end and extending through vertically-disposed slots in the spindle-shaft, the said bar being held in the said ring, a lever carrying said collar, and means for imparting a swinging movement to said lever to impart a periodical reciprocation to the said rod, substantially as shown and described.

13. A machine of the class described, comprising an intermittently-rotatable can-body-receiving platen, having notches in its periphery and retaining means for holding a can-body in a notch, and for allowing the said can-body to be turned in the said notch, a revoluble support, a revoluble spindle in alinement with the said support and both in alinement with a platen-notch, to engage the can body and head at the bottom and top and revolve the same, means for rotating the support and spindle in unison, a crimping-roller for engagement with the flanges of the can body and head, mechanism for raising the platen, a lever carrying the said crimping-roller, a cam connection for the said lever, and a spring in the said connection, for exerting a yielding pressure on the said lever and its crimping-roller, substantially as shown and described.

14. In a machine of the class described, a receiving-platen, a clamping-ring carried by said platen, and having a seat for the can-head, the said clamping-ring being arranged to hold the assembled can body and head and to permit of turning the same in the clamping-ring, a device for rotating the can body and head for crimping purposes, the said device comprising a revoluble support, a revoluble spindle in alinement with the said support, and held against axial movement, means for raising the platen to bring the top of the can-head against the under surface of the spindle, means for reciprocating the support to move it in contact with the bottom of the can to hold the can-head in contact with the spindle when the platen is returned to its normal or lower position, means for rotating the support and spindle in unison, and a rod slidable in the said spindle and adapted to engage the top of the can-head to push the can-head into its seat in the clamping-ring, on the receding of the support, substantially as shown and described.

15. In a machine of the class described, a device for rotating the assembled can body and head for crimping purposes, the said device comprising a revoluble support, a revoluble spindle in alinement with the said support and held against axial movement, means for reciprocating the said support to cause the same to engage the bottom of the can, and hold the head of the can in contact with the spindle, means for rotating the support and spindle, and a rod slidable in the said spindle and adapted to engage the can-head to move the can body and head out of a clamping position on the receding of the support, a bar secured to the upper end of said rod and extending through slots in the spindle-shaft, a collar loosely surrounding the shaft and connected with the said bar, a lever carrying the said collar, and means for swinging the lever to impart a sliding motion to the said rod, substantially as shown and described.

16. A machine of the class described, comprising an intermittently-rotating and axially-movable can-body-receiving platen, having notches in its periphery and retaining means for holding a can-body in a notch and for allowing the can-body to be turned in the said notch, means for moving the platen in an axial

direction, a device having two rotatable members, one of which is held against axial movement and the other is mounted to slide axially to clamp the can body and head between the members and rotate the same in the platen, a collar mounted loosely on the lower end of the axially-movable member, a stop on said member for holding the said collar against axial movement on the said member and means connected with the said collar for moving the same to impart a sliding motion to the said member, substantially as shown and described.

17. A machine of the class described, comprising an intermittently-rotatable and axially-movable platen having retaining means for holding the can bodies and heads and for allowing the same to be revolved in the platen, means for moving the platen in an axial direction a device having two rotatable members one of which is held against axial movement and the other is mounted to slide axially to clamp an assembled can body and head between the members and to rotate the same in the platen, a collar mounted loosely on the lower end of the axially-movable member and held against sliding movement thereon, a rock-shaft provided with arms having forks carrying the said collar, means for moving the said rock-shaft to impart an up-and-down sliding motion to the said axially-movable member, and a roller for engaging the edges of the can for crimping and compressing purposes, substantially as shown and described.

18. A machine of the class described, comprising an intermittently-rotating and axially-movable platen having retaining means for holding the can-bodies and can-heads and for allowing the same to be revolved in the platen, means for imparting motion to the platen in an axial direction, a device having two rotatable members, one of which is mounted to slide axially to clamp the assembled can body and head between the members and to rotate the same in the platen, means for imparting a sliding motion to the said axially-movable member, and an axially-movable pusher in the non-axially-movable member, for moving the can body and head out of a clamping position, substantially as shown and described.

19. A machine of the class described, comprising a platen or carrier, for carrying the assembled can-body and can-head, a plurality of devices for successively engaging the can body and head to clamp and to rotate the same, a crimping-roller for engaging the flanges of the can body and head, to crimp the said flanges, the crimping-roller operating in conjunction with one of the said clamping and rotating devices, and a compression-roller operating in conjunction with the other clamping and rotating device, to compress the seam previously formed by the said crimping-roller, substantially as shown and described.

20. A machine of the class described, comprising a platen or carrier, for carrying the assembled can-body and can-head, a plurality of devices for successively engaging the can body and head to clamp and to rotate the same, a crimping-roller for engaging the flanges of the can body and head, to crimp the said flanges, the crimping-roller operating in conjunction with one of the said clamping and rotating devices, a compression-roller operating in conjunction with the other clamping and rotating device, to compress the seam previously formed by the said crimping-roller, and means, substantially as described, for holding the said crimping-roller and the said compression-roller with a yielding pressure against the flanges and seam, as set forth.

21. A machine of the class described, comprising a platen or carrier, for carrying the assembled can-body and can-head, a plurality of devices for successively engaging the can body and head to clamp and to rotate the same, a crimping-roller for engaging the flanges of the can body and head, to crimp the said flanges, the crimping-roller operating in conjunction with one of the said clamping and rotating devices, a compression-roller operating in conjunction with the other clamping and rotating device, to compress the seam previously formed by the said crimping-roller, and means for imparting intermittent rotary motion to the said platen or carrier, to bring a crimped can from one of the said devices to the other, substantially as shown and described.

22. A machine of the class described, comprising a platen or carrier, for carrying the assembled can-body and can-head, a plurality of devices for successively engaging the can body and head to clamp and to rotate the same, a crimping-roller for engaging the flanges of the can body and head, to crimp the said flanges, the crimping-roller operating in conjunction with one of the said clamping and rotating devices, a compression-roller operating in conjunction with the other clamping and rotating device, to compress the seam previously formed by the said crimping-roller, means for imparting an intermittent rotary motion to the said platen or carrier, to bring a crimped can from one of the said devices to the other, and a locking device and means for operating the same and locking the said platen in position during the period of rest, substantially as shown and described.

23. A machine of the class described, provided with a platen having peripheral notches, and retaining devices in the said notches to hold a can-body in position in the notch, each of the said retaining devices consisting of an open clamp-ring secured to the platen at the notch, and a spring-pressed clamping bolt or bolts slidable in the ring, the latter having its round ends flush with the convexed corners of the notch-wall, substantially as shown and described.

24. A machine of the class described, provided with a platen having peripheral notches, and retaining devices in the said notches to

hold a can-body in position in the notch, the said retaining devices each comprising an open clamping-ring secured to the platen at the notch, and having a segmental recess formed in its upper part to receive the can-head, and a groove in the lower portion at its inner face, slidable and spring-pressed clamping-dogs arranged in the upper portion of said ring and projecting into said segmental recess, and a spring held in said groove and projecting on each side of the clamping-ring to engage the surface of the can-body, substantially as shown and described.

25. A machine of the class described, comprising a can-body-receiving platen having retaining devices for the can-bodies, a feeding device for automatically feeding the can-bodies successively to the said retaining devices, means for intermittently rotating the said platen and in unison with the movement of the said actuating parts of the said feeding device, and a conveying mechanism for carrying the can-bodies to the said feeding device, said conveying device having releasing members operating in unison with the feeding device, to allow a can-body at a time to pass to the feeding device, substantially as shown and described.

26. A machine of the class described, comprising a can-body-receiving platen having retaining devices for the can-bodies, a feeding device for automatically feeding the can-bodies successively to the said retaining devices, means for intermittently rotating the said platen and in unison with the movement of the said actuating parts of the said feeding device, and an ejecting device operating in unison with the said feeding device, to eject a finished can at a time from the said platen while the latter is at rest, substantially as shown and described.

27. A machine of the class described, comprising a can-body-receiving platen having retaining devices for the can-bodies, a feeding device for automatically feeding the can-bodies successively to the said retaining devices, means for intermittently rotating the said platen and in unison with the movement of the said actuating parts of the said feeding device, a can-head-feeding device, a can-head-receiving platen for bringing a can-head over a can-body in the said can-body-receiving platen, and a pusher for pushing a can-head at a time from the said can-head-feeding device onto the said can-head-receiving platen, the said pusher operating in unison with the said feeding device, substantially as shown and described.

28. A machine of the class described, comprising a can-body-receiving platen having retaining devices for the can-bodies, a feeding device for automatically feeding the can-bodies successively to the said retaining devices, means for intermittently rotating the said platen and in unison with the movement of the said actuating parts of the said feeding device, a can-head-feeding device, a can-head-receiving platen for bringing a can-head over a can-body in the said can-body-receiving platen, a pusher for pushing a can-head at a time from the said can-head-feeding device onto the said can-head-receiving platen, the said pusher operating in unison with the said feeding device, and an ejecting device for removing a finished can from the said platen and operating in unison with the said feeding device and the said pusher, substantially as shown and described.

29. A machine of the class described, comprising a can-body-receiving platen having retaining devices for the can-bodies, a feeding device for automatically feeding the can-bodies successively to the said retaining devices, means for intermittently rotating the said platen and in unison with the movement of the said actuating parts of the said feeding device, a can-head-feeding device, a can-head-receiving platen for bringing a can-head over a can-body in the said can-body-receiving platen, a pusher for pushing a can-head at a time from the said can-head-feeding device onto the said can-head-receiving platen, the said pusher operating in unison with the said feeding device, a retaining and releasing device for the heads on the said can-head-feeding device and controlled by the can-bodies on passing from the conveying device to the can-body-feeding device, substantially as shown and described.

30. A machine of the class described, having a can-head-feeding device, a can-head-receiving platen, said feeding device comprising a revolving disk upon which the can-heads are placed, a stopping and releasing device for holding the can-head temporarily stationary while the disk revolves, and a pushing-head for pushing a released head into the said platen, substantially as shown and described.

31. A machine of the class described, having a can-head-feeding device, a can-head-receiving platen, said feeding device comprising a revolving disk upon which the can-heads are placed, a stopping and releasing device for holding the can-head temporarily stationary while the disk revolves, and a pushing-head for pushing a released head into the said platen, the latter being provided with retaining devices for holding the can-heads in place, substantially as shown and described.

32. A machine of the class described, having a can-head-feeding mechanism, comprising a revolving disk on which the heads are placed, and an automatically-actuated lever having a pin normally projecting into the path of the heads in the disk, to hold the heads temporarily stationary while the disk revolves, substantially as shown and described.

33. A machine of the class described, having a can-head-feeding mechanism, comprising a revolving disk on which the heads are placed, an automatically-actuated lever having a pin normally projecting into the path

of the heads in the disk, to hold the heads temporarily stationary while the disk revolves, and means for imparting a swinging motion to the said lever, to release the heads and allow the same to travel with the disk, substantially as shown and described.

34. A machine of the class described, having a can-head-feeding mechanism, comprising a revolving disk on which the heads are placed, an automatically-actuated lever having a pin normally projecting into the path of the heads in the disk, to hold the heads temporarily stationary while the disk revolves, means for imparting a swinging motion to the said lever, to release the heads and allow the same to travel with the disk, and a hood over the said disk, to hold the heads from accidental displacement thereon, substantially as shown and described.

35. A machine of the class described having a can-body-receiving platen, a shaft carrying said platen and provided with a gear-wheel at its upper end, and a mechanism for imparting an intermittent rotary motion to the said platen, the said mechanism comprising a second shaft carrying a pinion at its upper end in mesh with the gear-wheel on the platen-shaft, a detent-wheel carried on the lower end of said second shaft and having radial recesses in its under side and peripheral notches, a third shaft mounted to rotate and provided with an arm having a friction-roller for engagement with the said recesses, means for rotating said third shaft, a disk having a segmental notch and rotating in unison with the said arm, the peripheral surface of the disk being adapted to mesh with the said detent-wheel notches, substantially as shown and described.

36. A machine of the class described, having a roller for crimping or compressing purposes, a lever on which the roller is journaled, a link connected at one end with the lever, a casing into which the other end of the link extends, a spring surrounding said link within the casing, a lever pivotally connected with the casing, and a cam for swinging the lever, substantially as shown and described.

37. In a machine of the class described, a roller for crimping or compressing purposes, a lever on which the roller is journaled, a casing, a link pivotally connected with said lever and extending into the casing, the link having a head arranged within the casing, a spring coiled around said link within the casing, a lever pivotally connected with the casing, and means for swinging the latter lever, substantially as shown and described.

38. In a machine of the class described, having a roller for crimping or compressing purposes, a lever on which the roller is journaled, means for imparting a swinging motion to the said lever, a bearing for the fulcrum of the lever, the said bearing being adjustably mounted, and an arm on said bearing carrying a stop-screw for limiting the swinging motion of said lever, substantially as shown and described.

39. In a machine of the class described, a roller for crimping or compressing purposes, a lever on which the roller is journaled means for imparting a swinging motion to said lever, a vertically-disposed pin forming the fulcrum for said lever, a bearing in which said pin is adjustably held, means for adjusting said bearing, and means for limiting the swinging motion of the lever, as set forth.

40. A machine of the class described, comprising an intermittently-rotating platen having retaining means for holding the can-bodies and can-heads and for allowing the same to be revolved in the platen, the said retaining means comprising an open clamping-ring secured to the platen, and having a segmental recess, formed in its upper part to receive the can-head, the said clamping-ring being provided with a groove in the lower portion at the inner face, and spring-pressed clamping means extending in the recess and groove to engage the head and body of the can, means for engaging the can body and head to revolve the same in said retaining means, and a crimping-roller for engagement with the can-flanges to crimp the same while the said head and body are being rotated, substantially as shown and described.

41. A machine of the class described, comprising an intermittently-rotating platen having peripheral notches, and retaining means for holding the can-bodies and can-heads in position in said notches, and for allowing the same to be revolved in the notches, the said retaining means comprising an open clamping-ring secured to the platen at each notch and having a segmental recess in its upper part to receive the can-head, and provided with a groove in the lower portion at the inner face, and spring-pressed clamping means in said ring for engaging the head and body of the can, means for engaging the can body and head to revolve the same in said retaining means, and a compressing-roller for engaging and compressing the seam of the can, to render the latter air-tight, substantially as shown and described.

42. A machine of the class described, comprising a platen or carrier for carrying the assembled can-body and can-head, a feeding device for automatically feeding the can-bodies successively to the said platen, means for intermittently rotating the platen, an ejecting device operating in unison with the feeding device to eject a finished can at a time from the platen while the latter is at rest, and means for actuating the ejecting device, substantially as shown and described.

43. A machine of the class described, comprising a platen or carrier for carrying the assembled can-body and can-head, a feeding device for automatically feeding the can-bodies successively to the said platen, means for intermittently rotating the said platen, a

crimping device for engagement with the flanges of the can body and head, an ejecting device operating in unison with the feeding device to eject a finished can at a time from the said platen while the latter is at rest, and means for moving the ejecting device, substantially as shown and described.

44. A machine of the class described, comprising a platen or carrier for carrying the assembled can-body and can-head, a shaft carrying said platen and mounted to rotate and also to move vertically in its bearings, a plurality of devices for successively engaging the can body and head to clamp and to rotate the same, a crimping-roller for engaging the flanges of the can body and head to crimp the said flanges, the said crimping-roller operating in conjunction with one of the said clamping and rotating devices, a compression-roller operating in conjunction with the other clamping and rotating device, to compress the seam previously formed by the crimping-roller, means for imparting an up-and-down motion to the shaft carrying the platen and an ejecting device for ejecting the finished cans from the said platen, substantially as shown and described.

45. A machine of the class described, comprising a platen for carrying the can bodies and heads thereon, a shaft carrying said platen, and mounted to rotate and also to move vertically in its bearings, means for revolving the can body and head in the platen, a crimping-roller for engaging the can-flanges and crimping the same while the body revolves, and means for imparting an up-and-down motion to the shaft carrying the platen, substantially as shown and described.

46. A machine of the class described, comprising a platen or carrier for carrying the assembled can-body and can-head, means for imparting an intermittent rotary motion to the platen, and means for locking the platen in position during the period of rest, the said means comprising a bell-crank lever fulcrumed on the frame of the machine one arm of the bell-crank lever being provided with a lug adapted to engage a notch in the peripheral surface of the platen, a second lever fulcrumed on the machine-frame and connected at its lower end by a link with the bell-crank lever, and a shaft mounted to turn and provided with a disk having a cam-groove in its face engaged by the upper end of said second lever for swinging the latter, substantially as shown and described.

47. A machine of the class described, comprising a can-body-receiving platen having retaining devices for the can-bodies, and a feeding mechanism for automatically feeding the can-bodies successively to the said retaining devices, the said feeding mechanism being provided with a conveyer-frame having an endless conveyer-belt for the can-bodies, a bracket fitted to slide on a vertically-disposed post supported on the machine-frame, and on which the inner end of the conveyer-frame is hung, means for adjusting the bracket up or down on the post to bring the top run of the conveyer-belt to a proper level relative to the height of the can-body and the position of the platen, devices for interrupting the forward movement of the can-bodies on the belt, and for releasing the can-bodies, and means for pushing the can-bodies into the retaining devices of the platen, substantially as shown and described.

48. A machine of the class described, comprising a can-body-receiving platen having retaining devices for the can-bodies, an endless conveyer-belt for the can-bodies, a table located adjacent to the conveyer-belt, a pusher-rod having a head for engaging and pushing the can-bodies successively from the conveyer-belt upon said table and a pusher-head for pushing the can-bodies from said table into the retaining devices of the platen, substantially as shown and described.

49. A machine of the class described, comprising a can-body-receiving platen having retaining devices for the can-bodies, means for intermittently rotating said platen, a conveying mechanism having an endless belt for carrying the can-bodies, levers normally in engagement with the can-bodies to interrupt their forward movement, a pusher-rod having a head for engaging the can-bodies successively to push them from the conveyer-belt, mechanism for actuating said pusher-rod, and a connection between said mechanism and the said levers whereby the said levers are moved out of engagement with the can-bodies so that the latter can move forward with the belt on which they rest, and a pushing-head for pushing the can-bodies into the retaining devices of the platen, after they have been pushed from the conveyer-belt, substantially as shown and described.

50. In a machine of the class described, a can-body-receiving platen having retaining devices for the can-bodies, means for intermittently rotating the said platen, a pusher-head for feeding the can-bodies successively to the said retaining devices, a can-head-feeding device, a can-head-receiving platen for bringing a can-head over a can-body in the said can-body-receiving platen, a pusher-head for pushing the can-heads successively from the can-head-feeding device onto the can-head-receiving platen, a guideway for conveying the cans to one side of the machine, a pusher-head for pushing a finished can from the can-body-receiving platen, upon said guideway, and connections between the said pusher-heads whereby they are operated in unison, substantially as shown and described.

51. In a machine of the class described, a plurality of devices for successively engaging the assembled can body and head to clamp and to rotate the same, the said devices each comprising a revoluble spindle for engaging a can-head and a revoluble support for engaging the bottom of a can, the said supports having axial movement, means for rotating

the said supports and spindles in unison while permitting of the axial movement of the supports, and means for imparting a reciprocating movement to the said supports, a crimping-roller operating in conjunction with one of the said clamping and rotating devices, and a compressing-roller operating in conjunction with the other clamping and rotating device, substantially as shown and described.

52. In a machine of the class described, a plurality of devices for successively engaging the assembled can body and head to clamp and to rotate the same, the said devices each comprising a revoluble spindle, and a revoluble support for engaging an assembled can body and head to rotate the same, the said supports each comprising a shaft mounted to turn and to slide, and a head on said support, a gear-wheel on each of said shafts and meshing with an intermediate gear-wheel of greater width than the gear-wheels on the shafts, so that the latter gear-wheels can move vertically with their shafts without moving out of mesh with the intermediate gear-wheel, means for imparting a sliding motion to the said supports, and means for rotating the intermediate gear-wheel, substantially as shown and described.

53. A machine of the class described, provided with a platen for carrying the can bodies and heads thereon and an ejecting device for moving the finished can from the platen, the said ejecting device comprising a slide mounted to move in a guideway on the frame of the machine, a post carried by said slide, a head on the upper end of the post and adapted to engage a finished can, and means for imparting a sliding motion to said slide, substantially as shown and described.

54. A machine of the class described, provided with a platen having retaining devices for the cans, means for intermittently rotating the platen, a pusher-head for feeding the cans into the retaining devices of the platen, means for crimping and compressing the flanges of the can body and head while in the retaining devices, a pusher-head for ejecting the finished can from the platen, and means for operating said pusher-heads in unison, substantially as shown and described.

55. A machine of the class described, provided with a platen having retaining devices for the cans, means for rotating said platen intermittently, a mechanism for feeding the assembled can bodies and heads to the retaining devices and having a pusher-head for pushing the cans into the retaining devices, means for crimping and compressing the flanges of the can body and head while in the retaining devices, a pusher-head for ejecting a finished can from the platen and operating in unison with the first-mentioned pusher-head, and means for locking the platen while in a state of rest, substantially as shown and described.

56. A machine of the class described, provided with a platen having retaining devices for the cans, means for rotating said platen intermittently, a feeding mechanism for the cans having a pusher-head for pushing the cans into the retaining devices of the platen, a pusher-head for ejecting the finished cans from the platen when in a state of rest, a bell-crank lever connected with said pusher-heads to operate the same in unison, and means for actuating the said lever, substantially as shown and described.

57. A machine of the class described, comprising a platen for carrying the can bodies and heads thereon, devices for engaging and revolving a can body and head in the platen for crimping or compressing purposes, one of said devices engaging the top of the can-head and having a depending annular flange, adapted to enter a recess or depression in the can-head to form an abutment during the crimping or compressing operation and means for pushing the can-head out of engagement with said flange, substantially as shown and described.

58. A machine of the class described, comprising an intermittently-rotating and vertically-movable platen for carrying the can bodies and heads thereon, means for revolving the can body and head in the platen, the said means consisting of a revoluble support arranged to engage the bottom of the can, and a revoluble spindle for engaging the can-head, the said spindle having a flange adapted to enter a recess in the can-head to serve as an abutment during the crimping operation, means for raising and lowering the platen and a crimping-roller for engaging and crimping the can-flanges while the body revolves, substantially as shown and described.

59. A machine of the class described, comprising an intermittently-rotating and vertically-movable platen for carrying the can bodies and heads thereon, and for allowing the same to be revolved in the platen, a revoluble support arranged to engage the bottom of the can, a revoluble spindle for engaging the can-head and having a flange adapted to enter a recess in the can-head to serve as an abutment during the compressing of the seam, means for moving the said platen vertically and a compressing-roller for engaging and compressing the seam of the can, to render the latter air-tight, substantially as shown and described.

60. A machine of the class described, comprising an intermittently-rotating platen having retaining means for holding the can-bodies and can-heads and for allowing the same to be revolved in the platen, a plurality of devices for successively engaging the assembled can body and head to clamp and to rotate the same in the platen, the said devices each comprising a revoluble spindle for engaging the can-head and having a flange adapted to enter a recess in the top of the can-head to serve as an abutment, and a support for engaging the bottom of the can and mounted to turn

and to slide, a gear-wheel on each of said supports and meshing with an intermediate gear-wheel, the gear-wheels being arranged to permit of the vertical movement of the supports without disengagement of said gear-wheels, means for rotating the intermediate gear-wheel, means for imparting a sliding motion to the supports, a crimping-roller for the can-flanges operating in conjunction with one of the said clamping and rotating devices, and a compressing-roller for compressing the seam, and operating in conjunction with the other clamping and rotating device, substantially as shown and described.

61. A machine of the class described, comprising a can-body-receiving platen, having retaining means for holding a can-body, and for allowing the can-body to be turned in the platen, a revoluble support, a revoluble spindle in alinement with the support and arranged to engage a can body and head at the bottom and top and revolve the same, the said revoluble spindle having a depending flange adapted to enter a recess in the can, and serving as an abutment during the crimping operation, a crimping-roller for engagement with the flanges of the can body and head, and a rod held to reciprocate in the said spindle to press the said can-head out of engagement with the flange of the spindle substantially as shown and described.

62. A machine of the class described, comprising a platen for carrying the can bodies and heads thereon, means for raising and lowering the platen, a device for clamping the can bodies and heads and for revolving the same, the said platen when raised carrying the can bodies and heads into position to be clamped by said device, and when lowered exposing the flanges of the can body and head for crimping purposes, a crimping-roller having its peripheral surface formed with an angular groove for engaging the can-flanges and crimping the same while the body revolves, and an abutment forming a part of the clamping and revolving device, and acting in conjunction with the crimping-roller, substantially as shown and described.

63. A machine of the class described, comprising a platen for carrying the can bodies and heads thereon, means for raising and lowering the platen, a device for clamping the can bodies and heads after the platen is raised and for revolving the same, the said platen when lowered or in its normal position exposing the flanges of the can body and head for compressing purposes, a compressing-roller having a straight peripheral face for engaging and compressing the seam of the can, and an abutment forming a part of the said clamping and revolving device and acting in conjunction with the compressing-roller, substantially as shown and described.

64. A machine of the class described, comprising an intermittently-rotatable and vertically-movable can-body-receiving platen provided with seats for the flanges of the can body and head, a revoluble spindle held against axial movement and provided with a head at its lower end having a flange adapted to enter a groove in the can-head when the platen is raised, a revoluble and vertically-movable support for the bottom of the can to hold the can in position against the spindle, means for revolving said support and spindle, a roller adapted to engage the can-flanges when the platen recedes, and means for pushing the can from the flange of the spindle and into the seat in the platen when the support recedes, substantially as shown and described.

65. A machine of the class described, comprising an intermittently-rotatable and vertically-movable can-body-receiving platen, having notches in its periphery and a clamping device for holding a can-body in a notch and for allowing the said can-body to be turned in the notch, the said clamping device having a recess forming a seat for the flanges of the can body and head, means for imparting a vertical reciprocating motion to the platen in an axial direction, a revoluble support, a revoluble spindle in alinement with the support and both in alinement with a platen-notch to engage the can body and head at the bottom and top and revolve the same, the said spindle being provided with a head having a depending flange arranged to enter a recess in the top of the can-head when the platen is raised, to serve as an abutment, means for rotating the support and spindle in unison a roller for engagement with the flanges of the can body and head after the platen is lowered and means for moving the can-head out of engagement with the flange of the spindle substantially as shown and described.

66. In a machine of the class described, a platen having a seat for the can-flanges, a device for rotating the assembled can body and head in the platen, and comprising a revoluble support having vertical movement, a revoluble spindle in alinement with the support and held against vertical movement, the said spindle being provided with means for engaging the top of the can-head to form an abutment during the crimping operation, and means for moving the can-head out of engagement with the spindle on the receding of the support, and into the seat in the platen, substantially as shown and described.

67. In a machine of the class described, a platen, a device for rotating the assembled can body and head in the platen, and comprising a revoluble support having axial movement, a revoluble spindle in alinement with the said support and held against axial movement, the said spindle being provided with a depending flange for engaging a recess in the top of the can-head, means for rotating the support and spindle, and a rod slidable in the said spindle and adapted to

engage the can-head to move the latter out of engagement with the flange of the spindle and into a seat in the platen on the receding of the support, substantially as shown and described.

68. A machine of the class described, comprising an intermittently-revolving can-body-receiving platen, having a clamping-ring for retaining and holding the body and allowing the same to be revolved in the clamping-ring, the said ring having a recess in its upper portion forming a seat for the flange of the can-body, a can-head-receiving platen having intermittent motion in unison with the said can-body-receiving platen and adapted to register therewith, to bring a can-head over a can-body, and a reciprocating plunger for engaging the can-head and pressing the same out of the can-head-receiving platen onto the end of the can-body, the recess in the clamping-ring receiving the flange of the can-head and centering the can-head when the latter is pressed out of the platen, substantially as shown and described.

69. A machine of the class described, comprising a can-body-receiving platen or carrier, having retaining devices for the can-bodies, means for feeding the can-bodies successively to the retaining devices of the platen, means for intermittently rotating the platen, a can-head-receiving platen rotating in unison with the can-body-receiving platen, and arranged to bring a can-head over a can-body, mechanism for feeding the can-heads to said can-head-receiving platen, a reciprocating plunger for pressing a can-head out of the can-head-receiving platen onto the end of the can-body, means for revolving the can body and head in said can-body-receiving platen, and means for crimping and compressing the flanges of the can body and head, substantially as shown and described.

70. A machine of the class described, comprising an intermittently-rotatable platen or carrier for carrying the assembled can-body and can-head, the said platen having a limited vertical movement, means for rotating the platen intermittently, a plurality of devices for successively engaging the can body and head to clamp and rotate the same, a crimping device for engaging the flanges of the can body and head to crimp the said flanges, the crimping device operating in conjunction with one of the said clamping and rotating devices, a compressing device operating in conjunction with the other clamping and rotating device to compress the seam previously formed by the said crimping device, mechanism for imparting a limited vertical movement to the platen, and means for actuating said mechanism, the said crimping and compressing devices being controlled from the said means, substantially as shown and described.

71. A machine of the class described, comprising a platen for carrying the can bodies and heads, means for imparting motion to the platen in an axial direction, means for clamping the can bodies and heads, when the platen is moved in one direction, and for revolving the same, the platen when moved in the opposite direction exposing the flanges for crimping or compressing purposes, substantially as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY L. GUENTHER.

Witnesses:
HENRY S. MCGOWAN,
EDMOND P. NOONAN.